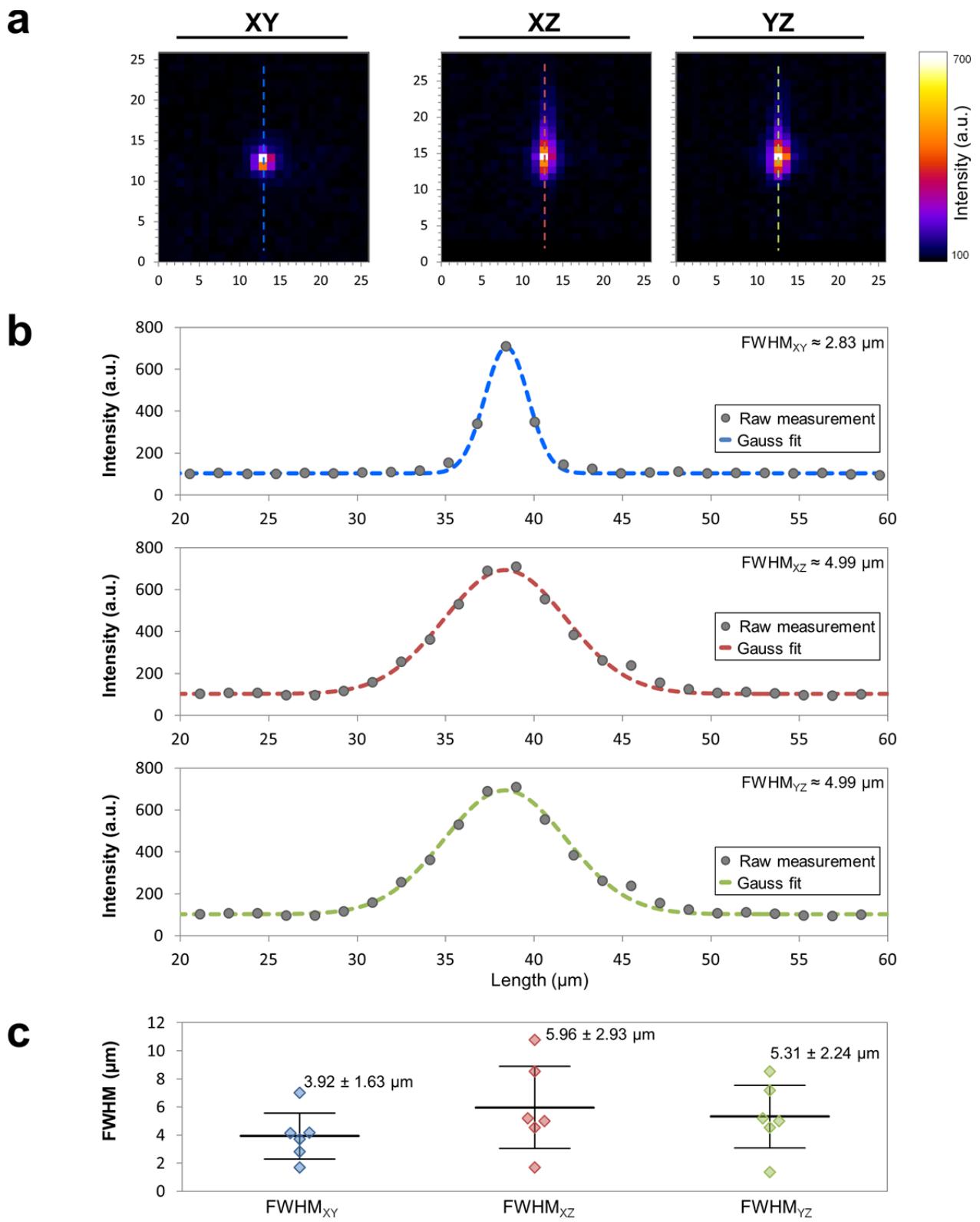


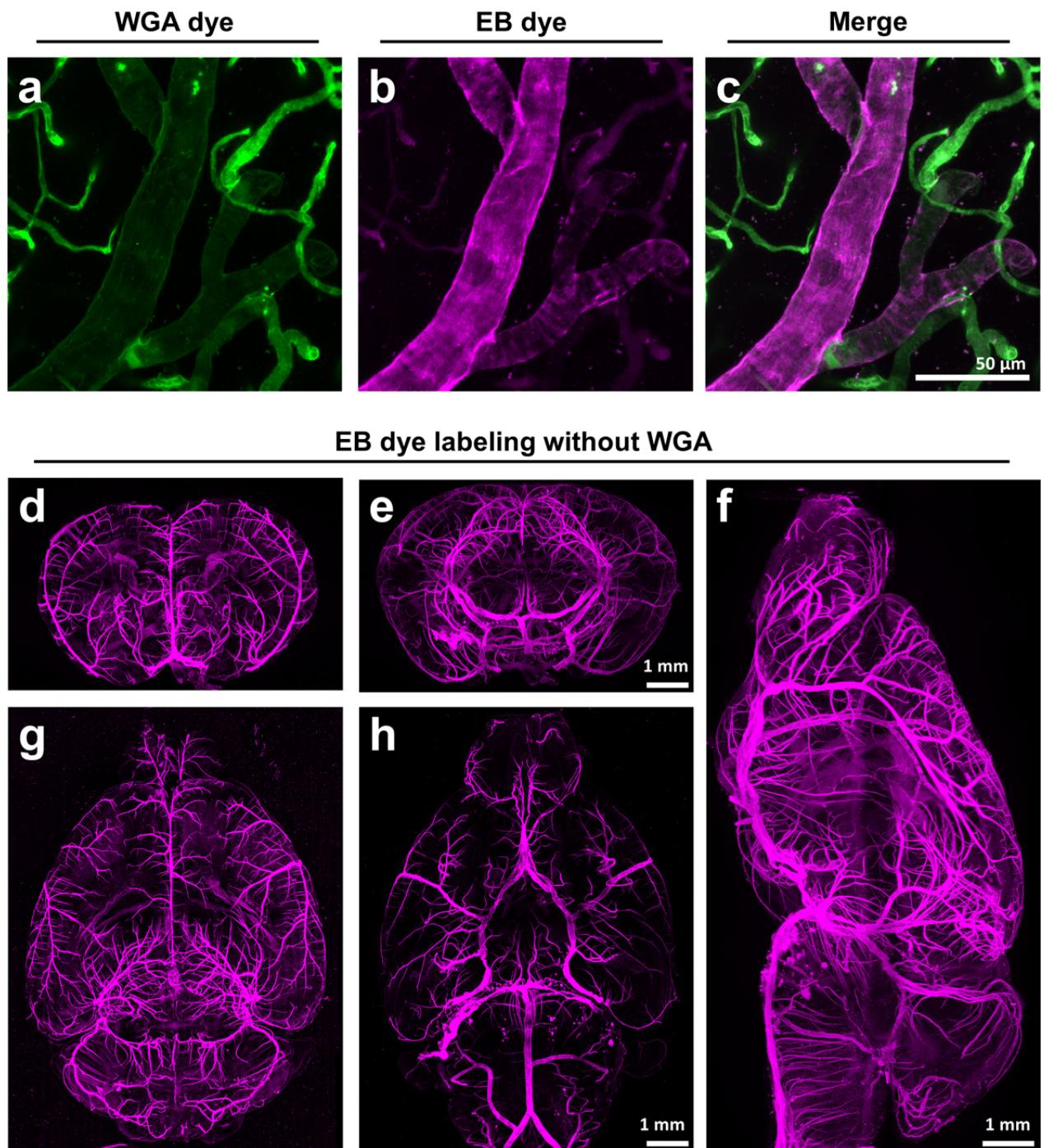
Supplementary Figure 1
Vasculature of a CD1 mouse, stained with WGA and EB.

a, Sagittal maximum intensity projections. **b**, Coronal maximum intensity projections. **c**, Axial maximum projections. **d-f**, Close-ups where capillary level staining is evident. The experiment was performed 9 times with similar results.



Supplementary Figure 2
Experimental measurement of the point spread function (PSF) of the LaVision light-sheet Ultramicroscope II.

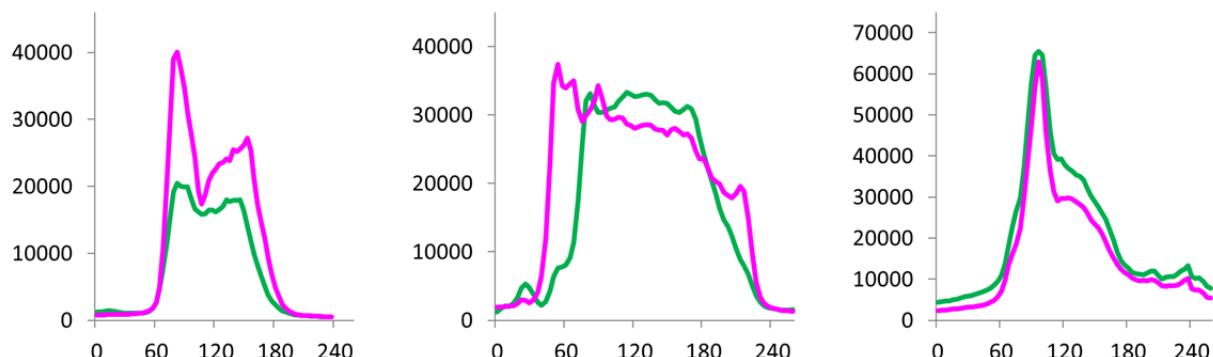
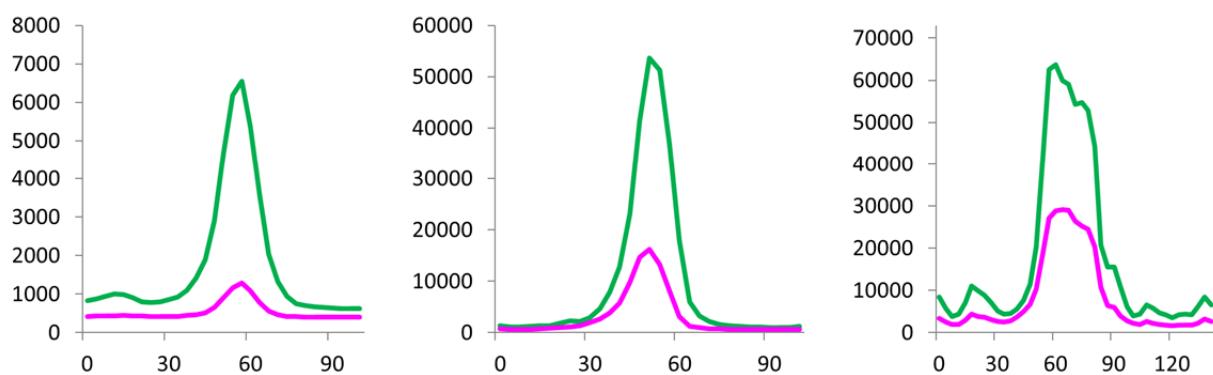
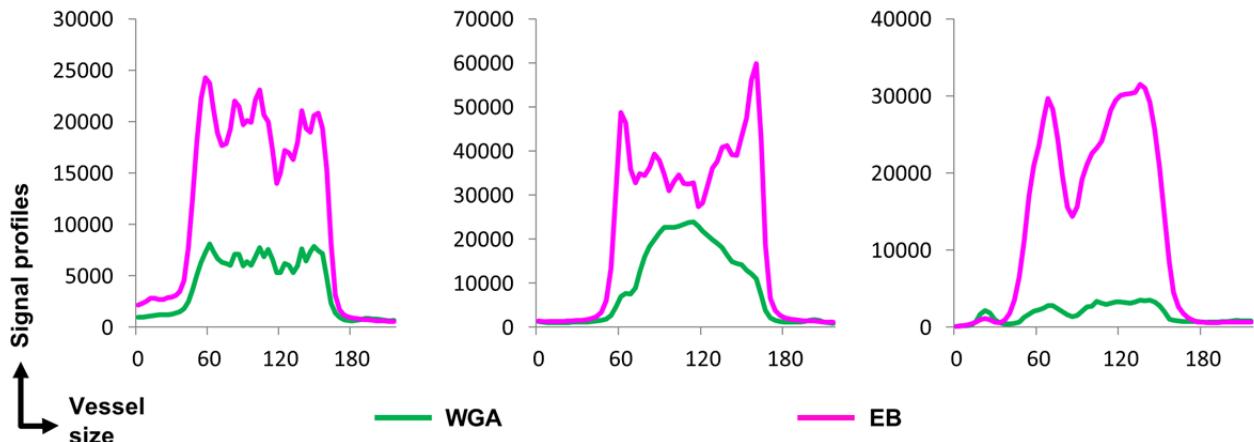
a, Red fluorescent beads (diameter 0.1 μm) were embedded in 1% agarose gel and cleared using 3DISCO. The beads were then imaged in BABB medium ($\text{RI} = 1.56$) using 4 \times objective lens (Olympus XLFLUOR 340), at 580/25 nm excitation and with a 625/30 nm emission filter by sampling at $1.625 \times 1.625 \times 1 \mu\text{m}$. **b**, Full width half maximum (FWHM) measure derived from the Gaussian fit to the intensity profile, along the indicated cross-sections in the center of the diffraction pattern (a) of an exemplary bead. **c**, Quantification of the PSF distribution ($n = 6$) derived from the Gaussian fittings. All data values are given as mean \pm SEM.



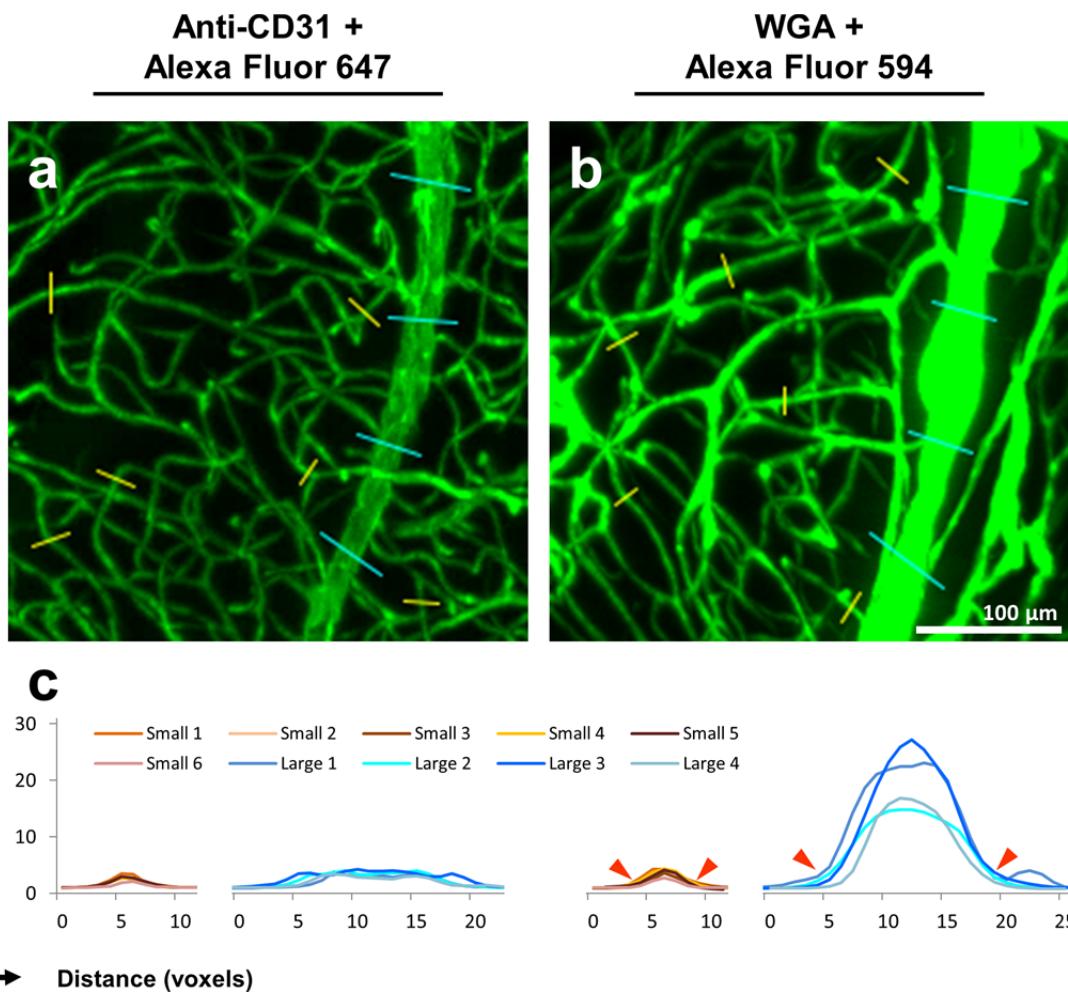
Supplementary Figure 3

Validation of complimentary staining of the neurovasculature.

a,b, Maximum intensity projection of confocal microscopy imaging of WGA and EB signal respectively. **c**, Merging of the two signals. **d-h**, Maximum intensity projections of the light-sheet microscopy imaging of a representative C57BL/6J specimen stained with EB, showing the major vascular segments in different planes. The experiment was performed 3 times with similar results.

mouse 1**mouse 2****mouse 3****a Both (WGA and EB) dyes stain****b WGA is stronger than EB****c EB is stronger than WGA****Supplementary Figure 4****Raw signal intensity distribution along line profiles across stained vessels for three animals.**

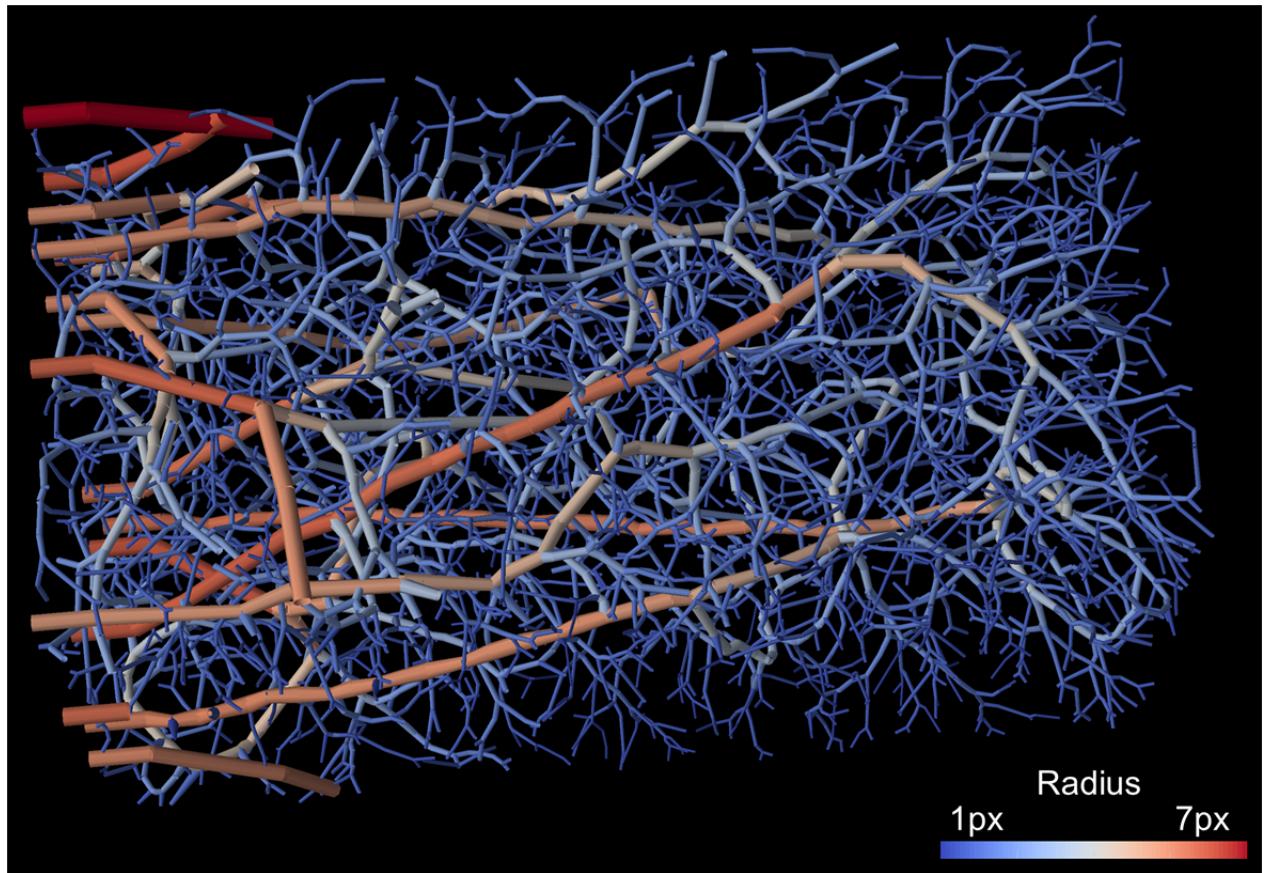
Fluorescence signal profiles for WGA and EB plotted based on vessel size. Data are separated based on WGA and EB signal intensity: a) comparable WGA and EB signal intensity, b) Signal intensity is stronger for WGA than for EB, c) Signal intensity is stronger for EB than for WGA.



Supplementary Figure 5

Comparison of the signal strength of anti-CD31 and lectin dyes.

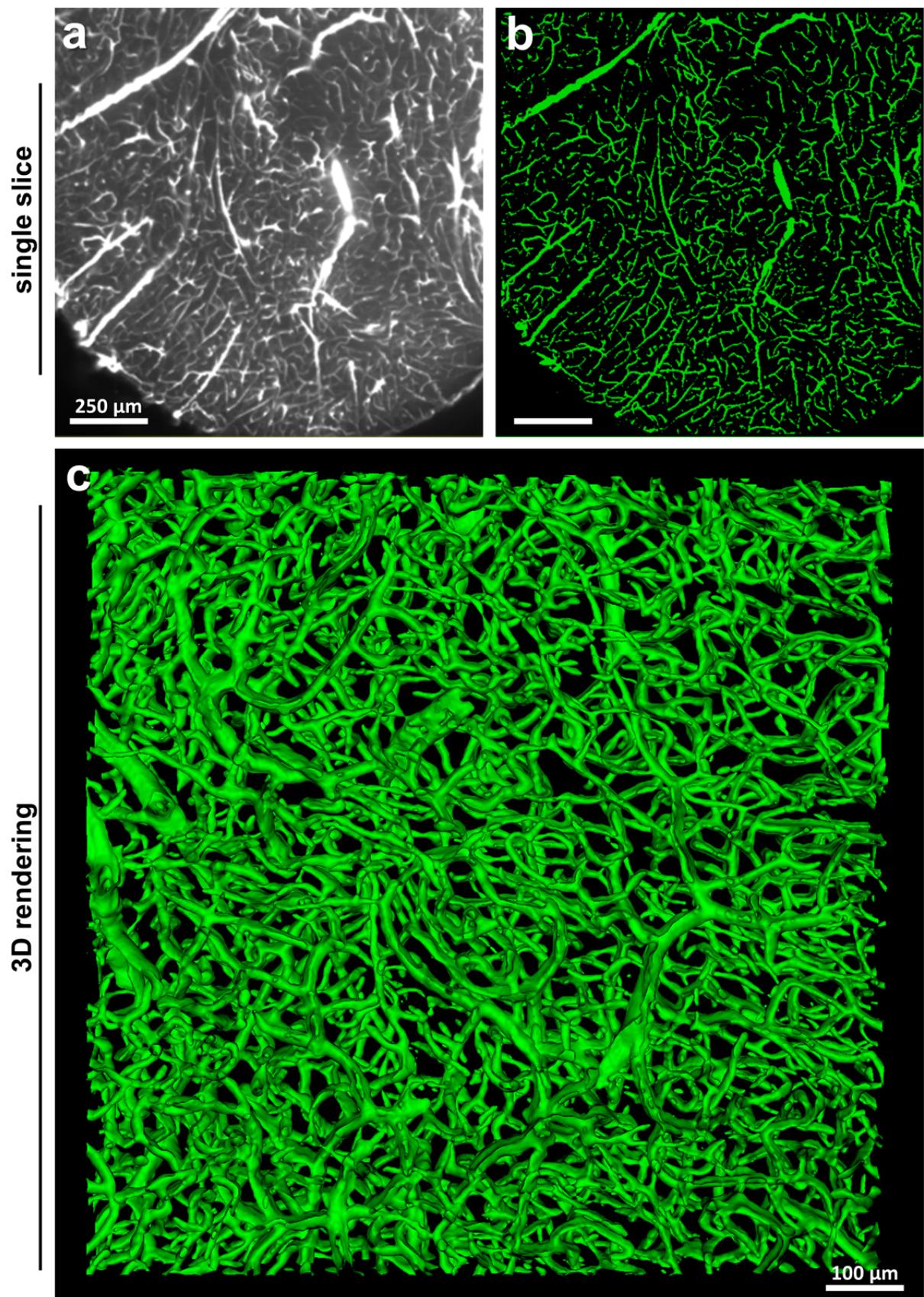
a-b, Axial maximum intensity projection of 150 μm thick tissue, stained as indicated. **c**, SNR quantifications on the line profiles indicated in (a) and (b) with warm and cold colored lines for small and large sized segments, respectively. The red arrowheads indicate where the signal of the vasculature gets higher. The experiments were performed on one mouse per condition.



Supplementary Figure 6

Demonstration of the synthetic data used for VesSAP.

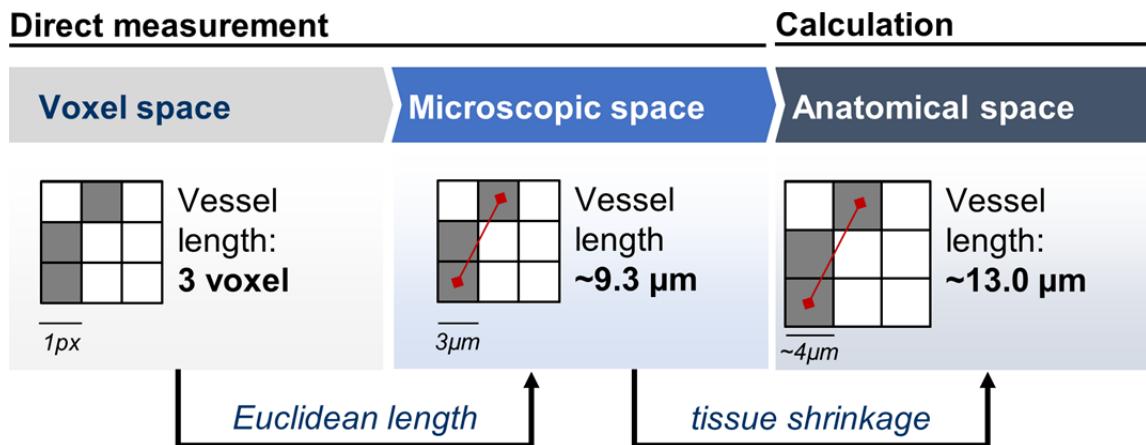
3D visualization including radius information in pixels (px) for one exemplary volume of synthetic data, which was used for pre-training our model in our transfer learning approach.



Supplementary Figure 7

Details of the segmentation quality by VesSAP.

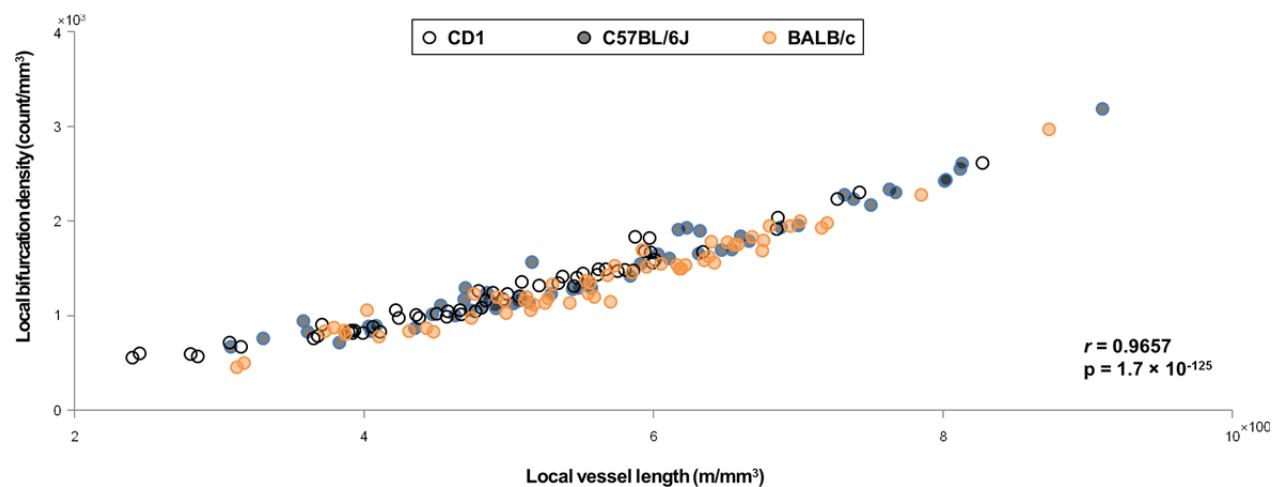
a,b, Side by side slices of the raw WGA channel image (a) and the segmentation (b). **c**, 3D rendering of a small brain volume. The experiment was performed on 9 different mice with similar results.



Supplementary figure 8

Three spaces of reported features.

Visualization of the three distinct spaces, in which we report the extracted features. The steps to account for the Euclidean length and the tissue shrinkage are visualized with an exemplary calculation of the vessel length of three vessel pixels in a 2D plane.



Supplementary Figure 9

Regression analysis of the neurovasculature in mouse strains.

Scatter plot of the local vessel length against the local bifurcation density (Pearson's $r = 0.9657$; $p = 1.7 \times 10^{-125}$). Each point represents the mean of three animals per strain.

Cluster	All regions in the cluster	Name of cluster
FRP	FRP, FRP1, FRP2/3, FRP5, FRP6a, FRP6b	Frontal pole
MO	MO, MO1, MO2/3, MO5, MO6a, MO6b, MOp, MOp1, MOp2/3, MOp5, MOp6a, MOp6b, MOs, MOs1, MOs2/3, MOs5, MOs6a, MOs6b	Somatomotor areas
SS	SS, SS1, SS2/3, SS4, SS5, SS6a, SS6b, SSp, SSp1, SSp2/3, SSp4, SSp5, SSp6a, SSp6b, SSp-bfd, SSp-bfd1, SSp-bfd2/3, SSp-bfd4, SSp-bfd5, SSp-bfd6a, SSp-bfd6b, SSp-II, SSp-II1, SSp-II2/3, SSp-II4, SSp-II5, SSp-II6a, SSp-II6b, SSp-m, SSp-m1, SSp-m2/3, SSp-m4, SSp-m5, SSp-m6a, SSp-m6b, SSp-n, SSp-n1, SSp-n2/3, SSp-n4, SSp-n5, SSp-n6a, SSp-n6b, SSp-tr, SSp-tr1, SSp-tr2/3, SSp-tr4, SSp-tr5, SSp-tr6a, SSp-tr6b, SSp-ul, SSp-ul1, SSp-ul2/3, SSp-ul4, SSp-ul5, SSp-ul6a, SSp-ul6b, SSp-un, SSp-un1, SSp-un2/3, SSp-un4, SSp-un5, SSp-un6a, SSp-un6b, SSs, SSs1, SSs2/3, SSs4, SSs5, SSs6a, SSs6b, VISrl, VISrl1, VISrl2/3, VISrl4, VISrl5, VISrl6a, VISrl6b	Somatosensory areas
GU	GU, GU1, GU2/3, GU4, GU5, GU6a, GU6b	Gustatory areas
VISC	VISC, VISC1, VISC2/3, VISC4, VISC5, VISC6a, VISC6b	Visceral area
AUD	AUD, AUDd, AUDd1, AUDd2/3, AUDd4, AUDd5, AUDd6a, AUDd6b, AUDp, AUDp1, AUDp2/3, AUDp4, AUDp5, AUDp6a, AUDp6b, AUDpo, AUDpo1, AUDpo2/3, AUDpo4, AUDpo5, AUDpo6a, AUDpo6b, AUDv, AUDv1, AUDv2/3, AUDv4, AUDv5, AUDv6a, AUDv6b, VISlla, VISlla1, VISlla2/3, VISlla4, VISlla5, VISlla6a, VISlla6b	Auditory areas
VIS	VIS, VIS1, VIS2/3, VIS4, VIS5, VIS6a, VIS6b, VISal, VISal1, VISal2/3, VISal4, VISal5, VISal6a, VISal6b, VISam, VISam1, VISam2/3, VISam4, VISam5, VISam6a, VISam6b, VISI, VISI1, VISI2/3, VISI4, VISI5, VISI6a, VISI6b, VISli, VISli1, VISli2/3, VISli4, VISli5, VISli6a, VISli6b, VISp, VISp1, VISp2/3, VISp4, VISp5, VISp6a, VISp6b, VISpl, VISpl1, VISpl2/3, VISpl4, VISpl5, VISpl6a, VISpl6b, VISpm, VISpm1, VISpm2/3, VISpm4, VISpm5, VISpm6a, VISpm6b, VISpor, VISpor1, VISpor2/3, VISpor4, VISpor5, VISpor6a, VISpor6b	Visual areas
ACA	ACA, ACA1, ACA2/3, ACA5, ACA6a, ACA6b, ACAd, ACAd1, ACAd2/3, ACAd5, ACAd6a, ACAd6b, ACAv, ACAv1, ACAv2/3, ACAv5, ACAv6a, ACAv6b	Anterior cingulate area
PL	PL, PL1, PL2, PL2/3, PL5, PL6a, PL6b	Prelimbic area
ILA	ILA, ILA1, ILA2, ILA2/3, ILA5, ILA6a, ILA6b	Infralimbic area
ORB	ORB, ORB1, ORB2/3, ORB5, ORB6a, ORB6b, ORBI, ORBI1, ORBI2/3, ORBI5, ORBI6a, ORBI6b, ORBm, ORBm1, ORBm2, ORBm2/3, ORBm5, ORBm6a, ORBm6b, ORBv, ORBvl, ORBvl1, ORBvl2/3, ORBvl5, ORBvl6a, ORBvl6b	Orbital area
AI	AI, Ald, Ald1, Ald2/3, Ald5, Ald6a, Ald6b, Alp, Alp1, Alp2/3, Alp5, Alp6a, Alp6b, Alv, Alv1, Alv2/3, Alv5, Alv6a, Alv6b	Agranular insular area
RSP	RSP, RSPagl, RSPagl1, RSPagl2/3, RSPagl5, RSPagl6a, RSPagl6b, RSPd, RSPd1, RSPd2/3, RSPd4, RSPd5, RSPd6a, RSPd6b, RSPv, RSPv1, RSPv2, RSPv2/3, RSPv5, RSPv6a, RSPv6b, VISm, VISm1, VISm2/3, VISm4, VISm5, VISm6a, VISm6b, VISmma, VISmma1, VISmma2/3, VISmma4, VISmma5, VISmma6a, VISmma6b, VISmmp, VISmmp1, VISmmp2/3, VISmmp4, VISmmp5, VISmmp6a, VISmmp6b	Retrosplenial area
PTL	PTLp, PTLp1, PTLp2/3, PTLp4, PTLp5, PTLp6a, PTLp6b, VISa, VISa1, VISa2/3, VISa4, VISa5, VISa6a, VISa6b, VISrl, VISrl1, VISrl2/3, VISrl4, VISrl5, VISrl6a, VISrl6b	Posterior parietal association areas

TE	TEa, TEa1, TEa2/3, TEa4, TEa5, TEa6a, TEa6b	Temporal association areas
PERI	PERI, PERI1, PERI2/3, PERI5, PERI6a, PERI6b	Perirhinal area
ECT	ECT, ECT1, ECT2/3, ECT5, ECT6a, ECT6b	Ectorhinal area
OLF	OLF, MOB, MOBipl, MOBopl	Olfactory areas
AOB	AOB, AOBgl, AOBmi	Accessory olfactory bulb
AOBgr	AOBgr, NLOT, NLOT1, NLOT1-3, NLOT2, NLOT3	AOBgr & NLOT
AON	AON, AON1, AON2, AOND, AONE, AONI, AONm, AONpv	Anterior olfactory nucleus
TT	TT, TTd, TTd1, TTd1-4, TTd2, TTd3, TTd4, TTv, TTv1, TTv1-3, TTv2, TTv3	Taenia tecta
DP	DP, DP1, DP2, DP2/3, DP5, DP6a	Dorsal peduncular area
PIR	PIR, PIR1, PIR1-3, PIR2, PIR3	Piriform area
COA	COA, COAa, COAa1, COAa2, COAa3, COAp, COApl, COApl1, COApl1-2, COApl1-3, COApl2, COApl3, COApm, COApm1, COApm1-2, COApm1-3, COApm2, COApm3	Cortical amygdalar area
PAA	PAA, PAA1, PAA1-3, PAA2, PAA3	Piriform-amygdalar area
TR	TR, TR1, TR1-3, TR2, TR3	Postpiriform transition area
CA	CA, CA1, CA1slm, CA1so, CA1sr, CA2, CA2slm, CA2so, CA2sr, CA3, CA3slm, CA3slu, CA3so, CA3sr, DG, DGcr, DGcr-mo, DGcr-po, DGcr-sg, DGlb, DGlb-mo, DGlb-po, DGlb-sg, DGmb, DGmb-mo, DGmb-po, DGmb-sg, DG-mo, DG-po, DG-sgz, FC, HIP, HPF, IG	Hippocampal formation
CA1sp	CA1sp, CA2sp, CA3sp, DG-sg	
ENT	ENT, ENTI, ENTI1, ENTI2, ENTI2/3, ENTI2a, ENTI2b, ENTI3, ENTI4, ENTI4/5, ENTI5, ENTI5/6, ENTI6a, ENTI6b, ENTm, ENTm1, ENTm2, ENTm2a, ENTm2b, ENTm3, ENTm4, ENTm5, ENTm5/6, ENTm6, ENTmv, ENTmv1, ENTmv2, ENTmv3, ENTmv4, ENTmv5/6, RHP	Retrohippocampal region
PAR	PAR, PAR1, PAR2, PAR3	Parasubiculum
POST	POST, POST1, POST2, POST3	Postsubiculum
PRE	PRE, PRE1, PRE2, PRE3	Presubiculum
SUB	SUB, SUBd, SUBd-m, SUBd-sr, SUBv, SUBv-m, SUBv-sr	Subiculum
ProS	ProS, ProSd, ProSd-m, ProSd-sr, ProSv, ProSv-m, Prosv-sr	Prosbiculum
CLA	CLA, CTXsp, 6b	Clastrum
EP	EP, EPd, EPv	Endopiriform nucleus
LA	LA	Lateral amygdalar nucleus
BLA	BLA, BLAa, BLAp, BLAv	Basolateral amygdalar nucleus
BMA	BMA, BMAs, BMAp	Basomedial amygdalar nucleus
PA	PA	Posterior amygdalar nucleus
CP	CP, CNU, STR, STRd	Caudoputamen

ACB	ACB, FS, isl, islm, LSS, OT, OT1, OT1-3, OT2, OT3, STRv	Nucleus accumbens
LS	LS, LSc, LSr, LSv, LSX, SF, SH	Lateral septal complex
AAA	AAA, BA, CEA, CEAc, CEAI, CEAm, IA, MEA, MEAad, MEAav, MEApd, MEApd-a, MEApd-b, MEApd-c, MEApv, sAMY	Anterior amygdalar area
GPe	GPe, GPi, PAL, PALd	Pallidum
MA	MA, PALv, SI	Magnocellular nucleus
MS	MS, MSC, NDB, PALm, TRS	Medial septal nucleus
BAC	BAC, BST, BSTa, BSTal, BSTam, BSTd, BSTdm, BSTfu, BSTif, BSTju, BSTmg, BSTov, BSTp, BSTpr, BSTrh, BSTse, BSTtr, BSTv, PALc	Bed nucleus of the anterior commissure
BS	BS, TH	Brain stem
DORsm	DORsm, GENd, LGd, LGd-co, LGd-ip, LGd-sh, MG, MGd, MGm, MGv, PoT, PP, SPA, SPF, SPFm, SPFp, VAL, VENT, VM, VP, VPL, VPLpc, VPM, VPMpc	Thalamus, sensory-motor cortex related
AD	AD, AM, AMD, AMv, ATN, AV, CL, CM, DORpm, EPI, Eth, GENv, IAD, IAM, IGL, ILM, IMD, IntG, LAT, LD, LGv, LGvl, LGvm, LH, LP, MD, Mdc, MDI, MDm, MED, MH, MTN, PCN, PF, PIL, PIN, PO, POL, PR, PT, PVT, RE, REth, RH, RT, SGN, SMT, SubG, Xi	Anterodorsal nucleus
HY	HY	Hypothalamus
ARH	ARH, ASO, NC, PVa, PVH, PVHam, PVHap, PVHm, PVHmm, PVHmpd, PVHp, PVHpm, PVHpmI, PVHpmM, PVHpv, PVi, PVZ, SO	Arcuate hypothalamic nucleus
ADP	ADP, AHA, AVP, AVPV, DMH, DMHa, DMHp, DMHv, MEPO, MPO, OV, PD, PS, PSCH, PvP, Pvpo, PVR, SBPV, SCH, SFO, VLPO, VMPO	Anterodorsal preoptic nucleus
AHN	AHN, AHNa, AHNc, AHNd, AHNp, LM, MBO, MEZ, MM, MMd, MMI, MMm, MMme, MMp, MPN, MPNc, MPNI, MPNm, PH, PMd, PMv, PVHd, PVHdp, PVHf, PVHlp, PVHmpv, SUM, SUMI, SUMm, TM, TMd, TMv, VMH, VMHa, VMHc, VMHdm, VMHvl	Anterior hypothalamic nucleus
A13	A13, FF, LHA, LPO, LZ, ME, PeF, PST, PSTN, RCH, STN, TU, ZI	
MB	MB	Midbrain
IC	IC, ICc, ICd, ICe, MBsen, MEV, NB, PBG, SAG, SCO, SCop, SCs, SCsg, SCzo	Inferior colliculus
APN	APN, AT, CUN, DT, EW, III, INC, InCo, IV, LT, MA3, MBmot, MBsta, MPT, MRN, MRNm, MRNm, MRNmg, MRNp, MT, ND, NOT, NPC, OP, Pa4, PAG, PN, PPT, PRC, PRT, RN, RPF, RR, SCdg, SCdw, SCig, SCig-a, SCig-b, SCig-c, SCiw, SCm, SNI, SNr, Su3, VTA, VTN	Anterior pretectal nucleus
SNC	SNC, CLI, DR, IF, IPA, IPC, IPDL, IPDM, IPI, IPL, IPN, IPR, IPRL, PPN, RAMb, RL	Substantia nigra
P	P, HB	Pons
KF	KF, NLL, NLLd, NLLh, NLLv, PB, PBI, PBlc, PBld, PBle, PBls, PBlv, PBm, PBme, PBmm, PBmv, POR, P-sen, PSV, SOC, SOCI, SOCm	Koelliker-Fuse subnucleus
Acs5	Acs5, B, DTN, I5, LTN, P5, PC5, PCG, PDTg, PG, P-mot, PRNc, PRNv, SG, SSN, SUT, TRN, V	Accessory trigeminal nucleus
CS	CS, CSI, CSm, LC, LDT, NI, PRNr, P-sat, RPO, SLC, SLD	Superior central nucleus raphe
MY	MY	Medulla

AP	AP, CN, CNlam, CNspg, CU, DCN, DCO, ECU, GR, MY-sen, NTB, NTS, NTSce, NTSc, NTSGe, NTSI, NTSm, Pa5, SPVC, SPVI, SPVO, SPVOcdm, SPVOmdmd, SPVOmdmv, SPVOrdm, SPVOvl, VCO, z	Area postrema
ACVI	ACVI, ACVII, AMB, AMBd, AMBv, DMX, ECO, EV, GRN, ICB, INV, IO, IRN, ISN, LAV, LIN, LRN, LRNm, LRNp, MARN, MDRN, MDRNd, MDRNv, MV, MY-mot, NIS, NR, PARN, PAS, PGRN, PGRNd, PGRNI, PHY, PMR, PPY, PPYd, PPYs, PRP, SPIV, SUV, VI, VII, VNC, x, XII, y	Accessory facial motor nucleus
CB	CB, CBX, CBN	Cerebellum
FN	FN, IP, DN, VeCB	Fastigial nucleus
oct	oct, ab, aco, act, alv, amc, aolt, aot, apd, ar, arb, bct, bic, bsc, cbc, cbf, cbp, cbt, cc, ccb, ccg, ccr, ccs, cct, cett, cic, cing, cm, cpd, cpt, crt, csc, cst, cstc, cstu, ctb, cte, cuf, cvb, cVIIIIn, das, db, dc, dcm, df, dhc, dl, dlf, drt, dscp, dtd, dtt, ec, ee, em, eps, epSC, fa, fi, fp, fpr, fr, fx, fxpo, fxprg, fxs, grf, gVIIIIn, hbc, hc, hht, iaf, ias, icp, IIIIn, IIn, im, In, int, IVd, iVIIIIn, IVn, IXn, jrb, lab, lfbs, lfbst, II, lot, lotd, lotg, mcp, mct, mfb, mfbc, mfbs, mfbsc, mfbsm, mfbsma, mfbst, mfbshy, ml, mlf, moV, mp, mtc, mtg, mtt, mtV, nst, ntt, och, onl, opt, or, pap, pc, per, php, phpd, phpl, phpm, phpv, PIS, pm, pmx, poc, ptf, pvbh, pvbt, py, pyd, rct, rrt, rst, rstm, rust, scp, scrt, sct, sctd, sctv, scwm, shp, sm, smd,.snp, sop, sptV, srp, sst, st, stc, step, stf, stp, sttl, sttv, sup, supa, supd, supv, sV, svp, tb, tct, tn, tp, ts, tsp, tspc, tspd, ttp, uf, vc, vhc, VIIIn, VIIIn, VIn, vlt, Vn, von, vrt, vsp, vtd, vVIIIIn, XIIn, XIIn, Xn	fiber tracts

Supplementary table 1

List of anatomical clusters and all the brain regions that they represent according to the current Allen adult mouse brain atlas ontology.

Cluster	BL6#1	BL6#2	BL6#3	CD1#1	CD1#2	CD1#3	BALBC #1	BALBC #2	BALBC #3
FRP	0.00490	0.00761	0.00499	0.00196	0.00405	0.00100	0.00261	0.00397	0.00428
MO	0.00713	0.00838	0.00561	0.00447	0.00743	0.00346	0.00708	0.00689	0.00606
SS	0.00831	0.00981	0.00791	0.00528	0.00987	0.00607	0.00694	0.00701	0.00589
GU	0.00782	0.00767	0.00635	0.00599	0.01000	0.00766	0.00572	0.00569	0.00560
VISC	0.00691	0.00778	0.00625	0.00496	0.00963	0.00619	0.00453	0.00520	0.00527
AUD	0.00632	0.00924	0.00637	0.00605	0.00776	0.00579	0.00725	0.00791	0.00730
VIS	0.00632	0.00845	0.00603	0.00399	0.00717	0.00412	0.00659	0.00747	0.00654
ACA	0.00700	0.00671	0.00534	0.00425	0.00814	0.00471	0.00554	0.00676	0.00533
PL	0.00727	0.00680	0.00503	0.00383	0.00704	0.00479	0.00528	0.00627	0.00614
ILA	0.00730	0.00497	0.00342	0.00495	0.00676	0.00600	0.00498	0.00601	0.00531
ORB	0.00925	0.00756	0.00613	0.00481	0.00823	0.00510	0.00591	0.00700	0.00640
AI	0.00710	0.00711	0.00546	0.00429	0.00734	0.00496	0.00624	0.00578	0.00578
RSP	0.00825	0.00794	0.00562	0.00378	0.00841	0.00478	0.00528	0.00744	0.00610
PTL	0.00401	0.00838	0.00570	0.00419	0.00687	0.00383	0.00658	0.00696	0.00557
TE	0.00474	0.00777	0.00554	0.00490	0.00758	0.00466	0.00548	0.00686	0.00604
PERI	0.00428	0.00637	0.00520	0.00296	0.00622	0.00331	0.00441	0.00507	0.00527
ECT	0.00419	0.00662	0.00514	0.00367	0.00682	0.00371	0.00449	0.00587	0.00562
OLF	0.00625	0.00360	0.00491	0.00343	0.00838	0.00526	0.00565	0.00595	0.00533
AOB	0.00745	0.00574	0.00464	0.00356	0.00744	0.00506	0.00551	0.00489	0.00565
AOBgr	0.00475	0.00345	0.00526	0.00222	0.00523	0.00375	0.00540	0.00551	0.00493
AON	0.00848	0.00529	0.00510	0.00453	0.00731	0.00493	0.00602	0.00629	0.00584
TT	0.00648	0.00275	0.00419	0.00350	0.00625	0.00533	0.00553	0.00532	0.00555
DP	0.00669	0.00395	0.00355	0.00437	0.00644	0.00643	0.00498	0.00596	0.00533
PIR	0.00690	0.00608	0.00613	0.00364	0.00699	0.00559	0.00653	0.00631	0.00578
COA	0.00353	0.00346	0.00468	0.00206	0.00494	0.00352	0.00474	0.00454	0.00480
PAA	0.00353	0.00225	0.00455	0.00183	0.00566	0.00412	0.00449	0.00481	0.00432
TR	0.00485	0.00493	0.00492	0.00248	0.00578	0.00335	0.00468	0.00477	0.00520
CA	0.00469	0.00485	0.00448	0.00340	0.00538	0.00376	0.00423	0.00501	0.00433
CA1sp	0.00447	0.00411	0.00430	0.00302	0.00478	0.00341	0.00352	0.00467	0.00414
ENT	0.00503	0.00733	0.00488	0.00351	0.00664	0.00354	0.00510	0.00575	0.00506
PAR	0.00598	0.00644	0.00524	0.00413	0.00857	0.00409	0.00602	0.00817	0.00525
POST	0.00702	0.00844	0.00744	0.00484	0.00684	0.00475	0.00592	0.00747	0.00539
PRE	0.00587	0.00785	0.00773	0.00396	0.00873	0.00583	0.00665	0.00783	0.00601
SUB	0.00646	0.00708	0.00648	0.00470	0.00723	0.00527	0.00569	0.00677	0.00524
ProS	0.00558	0.00466	0.00363	0.00340	0.00604	0.00264	0.00366	0.00399	0.00341
CLA	0.00718	0.00599	0.00533	0.00358	0.00615	0.00535	0.00533	0.00559	0.00468
EP	0.00613	0.00562	0.00495	0.00308	0.00585	0.00442	0.00488	0.00507	0.00478
LA	0.00423	0.00443	0.00379	0.00313	0.00551	0.00313	0.00395	0.00457	0.00429
BLA	0.00454	0.00460	0.00465	0.00272	0.00583	0.00391	0.00517	0.00532	0.00501
BMA	0.00483	0.00471	0.00487	0.00330	0.00561	0.00486	0.00529	0.00528	0.00530
PA	0.00511	0.00480	0.00510	0.00302	0.00536	0.00416	0.00681	0.00598	0.00547
CP	0.00634	0.00513	0.00524	0.00358	0.00642	0.00451	0.00400	0.00500	0.00368

ACB	0.00494	0.00319	0.00465	0.00263	0.00571	0.00375	0.00629	0.00608	0.00494
LS	0.00435	0.00274	0.00388	0.00313	0.00547	0.00448	0.00279	0.00316	0.00297
AAA	0.00513	0.00412	0.00453	0.00309	0.00498	0.00504	0.00519	0.00487	0.00501
GPe	0.00544	0.00394	0.00466	0.00267	0.00544	0.00330	0.00368	0.00434	0.00430
MA	0.00608	0.00373	0.00473	0.00218	0.00594	0.00421	0.00571	0.00490	0.00394
MS	0.00655	0.00345	0.00560	0.00267	0.00671	0.00519	0.00530	0.00456	0.00435
BAC	0.00532	0.00250	0.00377	0.00221	0.00475	0.00348	0.00314	0.00320	0.00273
BS	0.00479	0.00388	0.00485	0.00352	0.00556	0.00426	0.00452	0.00525	0.00503
DORsm	0.00503	0.00493	0.00517	0.00426	0.00688	0.00445	0.00564	0.00650	0.00618
AD	0.00483	0.00361	0.00481	0.00346	0.00635	0.00383	0.00442	0.00489	0.00494
HY	0.00620	0.00305	0.00465	0.00303	0.00602	0.00521	0.00519	0.00482	0.00470
ARH	0.00474	0.00167	0.00304	0.00268	0.00528	0.00358	0.00521	0.00465	0.00476
ADP	0.00623	0.00244	0.00430	0.00279	0.00616	0.00503	0.00559	0.00492	0.00441
AHN	0.00611	0.00303	0.00442	0.00300	0.00598	0.00487	0.00535	0.00511	0.00483
A13	0.00605	0.00452	0.00567	0.00391	0.00666	0.00519	0.00561	0.00533	0.00531
MB	0.00626	0.00540	0.00536	0.00401	0.00708	0.00418	0.00438	0.00575	0.00478
IC	0.00700	0.00877	0.00746	0.00511	0.00979	0.00472	0.00429	0.00697	0.00549
APN	0.00714	0.00566	0.00590	0.00465	0.00742	0.00397	0.00400	0.00570	0.00453
SNc	0.00541	0.00517	0.00500	0.00390	0.00664	0.00326	0.00318	0.00448	0.00347
P	0.00336	0.00217	0.00328	0.00179	0.00394	0.00227	0.00294	0.00374	0.00400
KF	0.00345	0.00328	0.00450	0.00192	0.00383	0.00241	0.00382	0.00528	0.00606
Acs5	0.00433	0.00243	0.00476	0.00257	0.00543	0.00313	0.00379	0.00502	0.00507
CS	0.00553	0.00381	0.00513	0.00304	0.00658	0.00324	0.00324	0.00417	0.00434
MY	0.00449	0.00248	0.00328	0.00178	0.00297	0.00214	0.00430	0.00373	0.00346
AP	0.00520	0.00541	0.00540	0.00304	0.00499	0.00260	0.00583	0.00683	0.00565
ACVI	0.00681	0.00412	0.00597	0.00303	0.00493	0.00328	0.00641	0.00683	0.00609
CB	0.00518	0.00414	0.00412	0.00202	0.00375	0.00303	0.00374	0.00493	0.00521
FN	0.00685	0.00784	0.00858	0.00330	0.00329	0.00554	0.00691	0.00913	0.00892
oct	0.00457	0.00356	0.00355	0.00243	0.00400	0.00259	0.00343	0.00403	0.00357

Supplementary table 2

Quantification of the local vascular length per volume in the C57BL/6J, CD1 and BALB/c samples in the voxel-corrected space. Units are in vx/vx3.

Cluster	BL6#1	BL6#2	BL6#3	CD1#1	CD1#2	CD1#3	BALBC #1	BALBC #2	BALBC #3
FRP	0,00064	0,00096	0,00056	0,00020	0,00053	0,00008	0,00025	0,00041	0,00051
MO	0,00107	0,00127	0,00066	0,00047	0,00107	0,00036	0,00104	0,00090	0,00075
SS	0,00138	0,00172	0,00119	0,00060	0,00170	0,00080	0,00094	0,00097	0,00071
GU	0,00119	0,00112	0,00080	0,00069	0,00178	0,00105	0,00066	0,00072	0,00066
VISC	0,00104	0,00121	0,00082	0,00055	0,00165	0,00080	0,00041	0,00057	0,00054
AUD	0,00083	0,00147	0,00080	0,00071	0,00113	0,00074	0,00097	0,00114	0,00095
VIS	0,00085	0,00131	0,00073	0,00039	0,00102	0,00044	0,00081	0,00105	0,00081
ACA	0,00100	0,00081	0,00061	0,00044	0,00128	0,00053	0,00063	0,00082	0,00061
PL	0,00104	0,00080	0,00052	0,00036	0,00097	0,00055	0,00053	0,00075	0,00074
ILA	0,00102	0,00044	0,00028	0,00049	0,00082	0,00069	0,00041	0,00061	0,00052
ORB	0,00155	0,00100	0,00073	0,00048	0,00119	0,00058	0,00065	0,00085	0,00078
AI	0,00104	0,00095	0,00061	0,00042	0,00101	0,00057	0,00075	0,00067	0,00064
RSP	0,00130	0,00116	0,00068	0,00037	0,00133	0,00055	0,00055	0,00106	0,00075
PTL	0,00049	0,00130	0,00075	0,00044	0,00093	0,00041	0,00085	0,00093	0,00068
TE	0,00053	0,00108	0,00061	0,00051	0,00109	0,00050	0,00056	0,00087	0,00067
PERI	0,00047	0,00078	0,00054	0,00024	0,00080	0,00031	0,00037	0,00053	0,00052
ECT	0,00042	0,00080	0,00053	0,00032	0,00090	0,00035	0,00039	0,00065	0,00058
OLF	0,00098	0,00048	0,00065	0,00037	0,00140	0,00067	0,00077	0,00080	0,00071
AOB	0,00115	0,00082	0,00062	0,00033	0,00115	0,00052	0,00063	0,00056	0,00078
AOBgr	0,00061	0,00034	0,00060	0,00017	0,00058	0,00038	0,00066	0,00063	0,00055
AON	0,00135	0,00057	0,00055	0,00045	0,00099	0,00055	0,00074	0,00072	0,00067
TT	0,00092	0,00025	0,00042	0,00034	0,00081	0,00064	0,00071	0,00062	0,00073
DP	0,00092	0,00033	0,00029	0,00041	0,00083	0,00077	0,00044	0,00064	0,00056
PIR	0,00103	0,00078	0,00077	0,00035	0,00098	0,00068	0,00090	0,00080	0,00069
COA	0,00040	0,00035	0,00045	0,00015	0,00055	0,00035	0,00059	0,00052	0,00051
PAA	0,00040	0,00024	0,00048	0,00012	0,00063	0,00042	0,00058	0,00057	0,00051
TR	0,00054	0,00051	0,00049	0,00018	0,00070	0,00030	0,00053	0,00054	0,00054
CA	0,00056	0,00049	0,00045	0,00030	0,00064	0,00039	0,00040	0,00051	0,00040
CA1sp	0,00053	0,00038	0,00041	0,00025	0,00052	0,00033	0,00028	0,00043	0,00036
ENT	0,00063	0,00101	0,00058	0,00034	0,00097	0,00039	0,00055	0,00072	0,00055
PAR	0,00091	0,00095	0,00071	0,00044	0,00150	0,00053	0,00078	0,00123	0,00061
POST	0,00097	0,00128	0,00101	0,00050	0,00094	0,00055	0,00072	0,00101	0,00062
PRE	0,00075	0,00112	0,00106	0,00036	0,00134	0,00071	0,00085	0,00107	0,00067
SUB	0,00089	0,00093	0,00081	0,00047	0,00106	0,00061	0,00064	0,00083	0,00054
ProS	0,00078	0,00052	0,00037	0,00036	0,00082	0,00024	0,00036	0,00041	0,00031
CLA	0,00104	0,00067	0,00056	0,00028	0,00077	0,00059	0,00054	0,00059	0,00044
EP	0,00082	0,00060	0,00050	0,00024	0,00069	0,00044	0,00047	0,00050	0,00044
LA	0,00048	0,00037	0,00032	0,00023	0,00063	0,00026	0,00032	0,00043	0,00036
BLA	0,00053	0,00042	0,00044	0,00020	0,00067	0,00035	0,00052	0,00054	0,00047
BMA	0,00057	0,00045	0,00050	0,00028	0,00065	0,00052	0,00057	0,00056	0,00054
PA	0,00063	0,00047	0,00052	0,00024	0,00063	0,00045	0,00093	0,00069	0,00057
CP	0,00090	0,00053	0,00058	0,00032	0,00081	0,00048	0,00034	0,00050	0,00032

ACB	0,00062	0,00028	0,00046	0,00021	0,00070	0,00039	0,00083	0,00072	0,00054
LS	0,00046	0,00018	0,00032	0,00024	0,00065	0,00044	0,00018	0,00022	0,00021
AAA	0,00069	0,00037	0,00044	0,00026	0,00057	0,00059	0,00058	0,00050	0,00051
GPe	0,00067	0,00033	0,00045	0,00021	0,00060	0,00029	0,00032	0,00041	0,00040
MA	0,00083	0,00031	0,00047	0,00016	0,00073	0,00044	0,00067	0,00049	0,00036
MS	0,00091	0,00028	0,00064	0,00021	0,00098	0,00063	0,00064	0,00045	0,00047
BAC	0,00065	0,00015	0,00032	0,00016	0,00052	0,00034	0,00024	0,00024	0,00020
BS	0,00057	0,00035	0,00050	0,00032	0,00067	0,00045	0,00043	0,00057	0,00051
DORsm	0,00060	0,00049	0,00056	0,00041	0,00089	0,00046	0,00062	0,00079	0,00070
AD	0,00055	0,00031	0,00048	0,00029	0,00076	0,00036	0,00042	0,00048	0,00048
HY	0,00083	0,00026	0,00049	0,00026	0,00077	0,00063	0,00056	0,00050	0,00048
ARH	0,00061	0,00013	0,00028	0,00021	0,00061	0,00037	0,00056	0,00050	0,00049
ADP	0,00087	0,00019	0,00044	0,00022	0,00083	0,00062	0,00065	0,00051	0,00046
AHN	0,00082	0,00026	0,00044	0,00024	0,00076	0,00055	0,00058	0,00054	0,00050
A13	0,00081	0,00047	0,00069	0,00040	0,00092	0,00063	0,00068	0,00064	0,00060
MB	0,00084	0,00058	0,00057	0,00037	0,00100	0,00044	0,00041	0,00064	0,00049
IC	0,00102	0,00137	0,00104	0,00053	0,00167	0,00054	0,00041	0,00090	0,00065
APN	0,00101	0,00060	0,00068	0,00045	0,00107	0,00040	0,00035	0,00062	0,00043
SNC	0,00068	0,00054	0,00051	0,00035	0,00087	0,00028	0,00025	0,00044	0,00029
P	0,00039	0,00019	0,00033	0,00014	0,00047	0,00019	0,00028	0,00040	0,00045
KF	0,00038	0,00033	0,00053	0,00015	0,00042	0,00020	0,00039	0,00062	0,00078
Acs5	0,00051	0,00018	0,00051	0,00020	0,00063	0,00029	0,00038	0,00052	0,00055
CS	0,00069	0,00032	0,00053	0,00025	0,00086	0,00026	0,00025	0,00038	0,00042
MY	0,00062	0,00026	0,00039	0,00016	0,00037	0,00022	0,00055	0,00047	0,00041
AP	0,00068	0,00064	0,00068	0,00028	0,00069	0,00025	0,00074	0,00095	0,00071
ACVI	0,00101	0,00037	0,00070	0,00025	0,00057	0,00032	0,00077	0,00091	0,00073
CB	0,00072	0,00049	0,00053	0,00017	0,00046	0,00032	0,00041	0,00065	0,00071
FN	0,00097	0,00114	0,00139	0,00029	0,00030	0,00072	0,00101	0,00151	0,00147
oct	0,00059	0,00037	0,00038	0,00020	0,00046	0,00025	0,00035	0,00043	0,00036

Supplementary table 3

Quantification of the number of bifurcation points in the C57BL/6J, CD1 and BALB/c samples in the voxel-corrected space, units are in counts/vx3.

Cluster	BL6#1	BL6#2	BL6#3	CD1#1	CD1#2	CD1#3	BALBC #1	BALBC #2	BALBC #3
FRP	2.06	2.35	2.33	3.53	2.26	2.66	2.44	2.32	2.36
MO	2.07	2.40	2.29	2.08	2.04	2.19	2.45	2.57	2.51
SS	2.14	2.47	2.38	2.12	2.17	2.25	2.47	2.59	2.50
GU	2.21	2.68	2.68	2.14	2.37	2.38	2.82	2.76	2.75
VISC	2.23	2.66	2.43	2.30	2.33	2.45	2.53	2.57	2.34
AUD	2.02	2.38	2.27	2.14	1.97	2.14	2.58	2.67	2.50
VIS	2.07	2.34	2.27	2.08	2.03	2.08	2.48	2.64	2.47
ACA	2.34	2.35	2.49	2.20	2.32	2.45	3.15	3.46	2.79
PL	2.17	2.48	2.29	2.14	2.12	2.34	2.66	2.79	2.75
ILA	2.32	2.43	2.42	2.31	2.15	2.35	2.68	2.91	2.69
ORB	2.27	2.41	2.34	2.24	2.10	2.18	2.50	2.43	2.64
AI	2.14	2.52	2.48	2.15	2.15	2.27	2.72	2.73	2.53
RSP	2.10	2.30	2.30	2.12	2.13	2.23	2.57	2.74	2.78
PTL	2.04	2.34	2.27	2.03	2.04	2.10	2.53	2.62	2.49
TE	2.04	2.41	2.27	2.04	1.98	1.99	2.49	2.63	2.42
PERI	2.13	2.42	2.33	2.02	2.07	2.03	2.54	2.57	2.51
ECT	2.13	2.38	2.28	2.03	2.02	1.99	2.55	2.65	2.47
OLF	2.29	2.44	2.47	2.26	2.20	2.48	2.54	2.59	2.52
AOB	2.15	2.70	2.58	2.16	2.46	2.44	2.64	2.78	2.45
AOBgr	2.62	2.67	2.81	2.58	2.35	2.93	2.70	2.50	2.47
AON	2.15	2.28	2.42	2.14	2.20	2.25	2.57	2.63	2.68
TT	2.86	2.53	2.86	2.54	2.31	2.92	2.91	2.67	2.61
DP	2.21	2.35	2.48	2.13	2.11	2.54	2.77	2.66	2.74
PIR	2.18	2.38	2.56	2.14	2.18	2.34	2.73	2.69	2.55
COA	2.16	2.33	2.49	2.30	2.18	2.29	3.02	2.94	2.64
PAA	2.22	2.26	2.59	2.43	2.16	2.45	2.92	2.74	2.57
TR	2.16	2.48	2.46	2.10	2.19	1.99	2.73	3.02	2.54
CA	2.56	2.49	2.65	2.57	2.24	2.70	3.93	4.14	3.22
CA1sp	2.34	2.23	2.42	2.12	2.07	2.86	2.60	2.55	2.76
ENT	2.09	2.41	2.32	2.08	2.25	2.22	2.52	2.70	2.51
PAR	2.44	2.31	2.33	2.16	2.27	2.54	2.46	2.49	2.42
POST	2.43	2.61	2.73	2.64	2.31	2.54	2.72	2.55	2.94
PRE	3.28	2.60	2.53	3.04	2.42	2.90	3.49	2.48	3.60
SUB	2.34	2.50	2.52	2.34	2.40	2.25	2.51	2.56	2.46
ProS	2.10	2.35	2.38	2.14	2.10	2.19	2.53	2.66	2.67
CLA	2.22	2.41	2.62	2.12	2.29	2.33	2.88	2.72	2.54
EP	2.17	2.42	2.56	2.12	2.20	2.28	2.85	2.78	2.60
LA	2.08	2.13	2.40	2.10	2.14	2.19	2.96	2.96	2.70
BLA	2.08	2.25	2.54	2.10	2.19	2.18	2.96	2.96	2.73
BMA	2.13	2.20	2.55	2.18	2.25	2.38	3.05	2.96	2.87
PA	2.06	2.24	2.47	2.06	2.08	2.17	2.86	2.87	2.60
CP	2.30	2.23	2.54	2.26	2.20	2.51	2.63	2.67	2.55

ACB	2.16	2.05	2.37	2.22	2.06	2.29	2.58	2.51	2.34
LS	2.05	2.13	2.44	2.15	2.29	2.15	2.34	2.49	2.38
AAA	2.30	2.27	2.51	2.60	2.31	2.63	3.03	2.75	2.79
GPe	2.19	2.07	2.46	2.18	2.22	2.43	2.58	2.65	2.52
MA	2.28	2.10	2.51	2.31	2.12	2.41	2.56	2.47	2.47
MS	2.30	2.28	2.55	2.52	2.36	2.93	2.43	2.55	2.46
BAC	2.23	2.53	2.68	2.00	2.39	2.03	2.42	2.59	2.45
BS	2.12	2.19	2.39	2.15	2.16	2.23	2.57	2.55	2.46
DORsm	2.14	2.23	2.43	2.14	2.13	2.17	2.63	2.55	2.56
AD	2.07	2.14	2.31	2.14	2.07	2.22	2.45	2.42	2.38
HY	2.22	2.11	2.48	2.23	2.23	2.60	2.59	2.66	2.48
ARH	2.17	2.29	2.50	2.28	2.29	2.88	2.45	2.61	2.29
ADP	2.52	2.82	2.94	3.21	2.43	3.00	2.56	2.64	2.50
AHN	2.27	2.23	2.58	2.25	2.20	2.49	2.50	2.60	2.44
A13	2.26	2.17	2.44	2.32	2.45	2.62	2.70	2.45	2.44
MB	2.12	2.31	2.56	2.06	2.20	2.17	2.54	2.61	2.52
IC	2.15	2.24	2.27	2.11	2.34	2.24	2.63	2.73	2.54
APN	2.14	2.28	2.40	2.03	2.19	2.13	2.48	2.48	2.40
SNc	2.31	2.53	2.63	2.26	2.22	2.29	2.60	2.75	2.60
P	2.33	2.31	2.43	2.32	2.24	2.55	2.42	2.61	2.49
KF	2.18	2.24	2.26	2.43	2.25	2.54	2.52	2.43	2.40
Acs5	2.19	2.12	2.31	2.31	2.07	2.41	2.46	2.42	2.40
CS	2.12	2.04	2.27	1.90	2.04	2.10	2.35	2.50	2.44
MY	2.20	2.16	2.36	2.17	2.28	2.29	2.59	2.74	2.50
AP	2.05	2.12	2.21	2.08	2.22	1.97	2.37	2.56	2.30
ACVI	2.30	2.12	2.35	2.27	2.22	2.12	2.50	2.66	2.46
CB	2.18	2.36	2.67	2.55	2.31	2.40	2.49	2.71	2.56
FN	2.10	2.15	2.34	2.13	2.02	2.09	2.46	2.38	2.38
oct	2.31	2.30	2.45	2.27	2.26	2.37	2.59	2.63	2.46

Supplementary table 4

Quantification of the radii in the C57BL/6J, CD1 and BALB/c samples in the voxel-corrected space, units are in vx.

Cluster	BL6#1	BL6#2	BL6#3	CD1#1	CD1#2	CD1#3	BALBC #1	BALBC #2	BALBC #3
FRP	719.81	1118.68	733.15	287.84	596.06	146.94	383.64	583.69	629.29
MO	1048.25	1232.20	825.23	656.95	1093.14	508.53	1040.80	1013.67	891.79
SS	1222.57	1441.97	1162.48	776.57	1451.00	892.96	1021.11	1031.19	866.42
GU	1149.30	1127.14	933.31	881.49	1470.88	1126.30	841.42	836.62	823.94
VISC	1016.51	1143.88	919.24	729.46	1415.35	910.67	666.37	765.01	775.18
AUD	929.26	1358.36	936.36	889.46	1141.52	851.74	1065.89	1163.60	1073.18
VIS	928.94	1242.70	886.48	586.44	1054.50	606.48	968.61	1097.99	962.29
ACA	1028.65	986.51	785.10	625.14	1197.54	693.00	814.56	994.05	783.90
PL	1069.15	1000.28	740.29	563.85	1035.32	703.89	776.62	921.60	902.68
ILA	1072.84	730.91	502.99	728.36	994.08	882.39	731.92	883.94	780.31
ORB	1359.66	1111.72	901.02	706.82	1210.53	749.79	869.66	1029.35	940.88
AI	1044.59	1045.48	802.82	630.52	1079.05	729.32	916.89	850.15	849.33
RSP	1213.69	1167.69	826.12	556.53	1236.67	703.25	776.24	1093.96	896.48
PTL	589.85	1232.58	837.70	615.78	1010.92	563.72	967.03	1023.68	818.77
TE	696.56	1142.78	814.66	720.03	1114.58	685.05	805.32	1008.26	887.77
PERI	628.88	936.89	764.54	434.56	915.32	486.02	648.91	745.63	774.86
ECT	615.54	973.08	756.32	539.22	1002.36	544.91	660.33	863.42	826.04
OLF	918.29	528.93	721.69	503.74	1232.31	773.96	831.16	874.80	784.00
AOB	1095.15	844.41	682.01	523.93	1094.73	744.21	810.80	719.11	830.29
AOBgr	698.45	506.86	772.76	326.25	769.50	551.26	793.40	809.63	725.02
AON	1246.96	777.66	750.09	665.89	1075.61	724.66	885.26	925.20	858.75
TT	952.74	404.86	616.27	514.86	919.39	783.44	812.56	782.74	815.38
DP	984.41	580.32	521.76	643.00	946.98	946.02	731.76	875.84	783.36
PIR	1014.22	893.75	902.01	535.96	1027.76	822.62	960.81	928.15	849.46
COA	519.31	508.62	688.35	302.72	726.67	517.43	697.20	668.07	705.16
PAA	519.67	331.52	669.07	268.43	832.27	605.50	660.83	707.58	635.27
TR	713.29	725.55	722.80	365.16	850.23	492.55	688.54	701.81	765.26
CA	689.09	712.58	659.15	500.22	790.85	552.59	621.69	736.13	636.36
CA1sp	657.85	604.65	632.59	443.61	703.31	500.71	517.49	686.62	608.19
ENT	739.55	1078.29	717.63	516.81	976.19	520.25	749.89	844.99	744.69
PAR	879.62	946.67	770.00	607.20	1260.23	601.76	885.30	1201.17	772.23
POST	1032.48	1241.02	1094.03	712.26	1006.41	698.99	870.70	1098.09	791.99
PRE	863.57	1153.73	1137.18	581.74	1283.05	856.64	978.21	1150.62	883.73
SUB	949.30	1041.07	953.54	690.63	1063.20	774.25	836.39	996.21	770.36
ProS	819.91	684.89	534.20	500.48	887.92	388.53	538.65	587.25	501.86
CLA	1056.38	881.31	783.01	526.75	904.03	786.12	783.96	821.79	687.97
EP	901.38	825.73	728.23	452.45	859.75	650.63	716.91	745.74	702.97
LA	622.41	651.07	557.65	460.41	810.48	459.70	580.43	671.64	631.47
BLA	667.57	675.91	683.98	399.58	857.36	575.35	760.15	782.80	736.35
BMA	709.76	692.22	715.82	485.51	824.96	714.55	777.27	776.70	779.55
PA	750.73	706.11	749.80	443.59	788.33	611.11	1001.29	879.84	804.16
CP	931.54	754.27	769.97	526.23	943.65	663.07	587.46	734.87	541.26

ACB	726.78	468.84	683.56	386.39	840.11	550.87	924.94	894.13	726.36
LS	639.18	403.36	569.81	459.94	804.94	658.75	410.96	464.19	436.64
AAA	754.54	606.42	665.74	453.88	732.46	740.79	762.91	716.18	736.72
GPe	800.59	579.02	685.23	393.02	800.25	485.55	541.33	638.24	631.98
MA	894.22	548.66	695.15	319.83	873.57	619.46	839.26	720.59	579.14
MS	963.30	506.92	823.94	393.19	987.01	762.96	779.51	670.04	639.58
BAC	782.50	367.08	554.83	325.31	698.31	511.71	461.13	470.45	401.36
BS	704.80	569.94	713.50	518.26	817.19	626.73	664.73	771.37	739.95
DORsm	739.20	724.49	759.70	625.93	1010.94	654.18	829.20	955.45	908.10
AD	710.52	530.64	707.36	509.14	933.33	562.48	650.16	718.36	726.77
HY	912.22	449.00	684.05	445.60	885.77	766.83	763.63	708.17	691.49
ARH	697.02	246.12	446.55	394.21	776.16	526.03	765.37	684.29	699.34
ADP	916.67	358.25	632.37	410.92	905.57	739.81	821.80	723.03	648.11
AHN	898.72	445.45	650.43	440.86	879.34	716.36	786.07	751.71	710.06
A13	889.18	664.83	833.02	574.50	980.00	763.20	824.92	783.77	781.41
MB	920.67	793.93	788.32	590.22	1041.19	615.08	644.43	845.51	702.16
IC	1029.18	1289.43	1096.39	751.61	1438.99	694.66	630.47	1024.37	806.88
APN	1049.56	832.80	867.45	683.94	1090.88	584.14	588.78	837.74	666.08
SNc	795.22	759.98	734.68	573.06	976.72	478.87	468.03	658.41	510.82
P	493.76	318.81	482.09	263.62	579.83	333.32	431.94	550.02	587.69
KF	507.24	482.30	661.72	282.48	563.46	354.57	561.88	776.05	891.69
Acs5	636.43	357.36	700.60	377.53	798.93	459.86	557.17	738.23	745.40
CS	812.85	560.07	754.40	447.45	967.60	476.53	476.94	612.59	637.48
MY	660.51	364.51	482.57	261.65	436.11	314.62	632.36	548.89	508.50
AP	764.94	794.94	793.32	447.33	733.75	381.68	857.35	1004.94	830.18
ACVI	1001.85	606.15	878.32	445.09	724.62	482.96	942.05	1004.80	894.96
CB	761.08	609.37	606.03	297.01	551.35	445.34	549.30	724.44	766.69
FN	1007.05	1152.18	1261.14	485.80	483.46	814.84	1016.73	1343.19	1311.83
oct	671.42	523.78	522.04	357.37	587.50	381.05	504.58	592.97	525.37

Supplementary table 5

Quantification of the local vascular length per volume in the C57BL/6J, CD1 and BALB/c samples in the microscopy space. Units are in mm/mm3.

Cluster	BL6#1	BL6#2	BL6#3	CD1#1	CD1#2	CD1#3	BALBC #1	BALBC #2	BALBC #3
FRP	23524	35671	20593	7322	19611	2991	9357	15228	19019
MO	39776	46880	24446	17511	39601	13432	38467	33505	27601
SS	50955	63539	43967	22296	62891	29549	34831	35821	26155
GU	44052	41461	29646	25455	65769	38823	24384	26636	24383
VISC	38342	44642	30287	20389	61105	29690	15299	21212	20002
AUD	30604	54404	29622	26250	41971	27252	35903	42101	35349
VIS	31402	48335	27079	14373	37617	16370	29846	38792	29951
ACA	36955	29816	22417	16131	47382	19575	23352	30328	22768
PL	38603	29477	19432	13501	35750	20427	19472	27722	27366
ILA	37816	16328	10361	17993	30320	25411	15359	22456	19290
ORB	57233	37077	27086	17922	44024	21437	23985	31380	28755
AI	38586	35276	22411	15510	37532	21014	27625	24993	23888
RSP	48191	42920	25043	13611	49439	20492	20279	39112	27817
PTL	18202	48296	27920	16219	34279	15116	31532	34435	25245
TE	19758	40058	22684	18874	40247	18696	20737	32153	24805
PERI	17292	28715	19853	8909	29664	11527	13559	19521	19375
ECT	15504	29570	19494	11924	33371	13125	14312	24089	21435
OLF	36378	17766	23892	13782	51825	24895	28538	29626	26177
AOB	42498	30535	23087	12246	42653	19413	23379	20805	28818
AOBgr	22467	12598	22046	6260	21666	14139	24596	23304	20363
AON	50084	21192	20271	16628	36730	20329	27574	26851	24663
TT	33906	9083	15401	12692	29852	23552	26186	23141	26906
DP	34126	12167	10567	15050	30600	28553	16172	23805	20569
PIR	38037	29002	28671	12779	36128	25360	33170	29812	25456
COA	14709	13070	16841	5710	20309	13039	21850	19152	18728
PAA	14677	9006	17760	4614	23225	15644	21464	21229	18715
TR	20034	18850	17977	6664	26085	11179	19672	19929	20081
CA	20639	18296	16823	11043	23758	14272	14845	18935	14943
CA1sp	19524	13929	15313	9210	19295	12350	10362	15826	13496
ENT	23338	37302	21371	12602	35910	14294	20336	26644	20433
PAR	33758	35125	26234	16274	55377	19536	28754	45529	22765
POST	35759	47237	37547	18518	34643	20191	26600	37512	22960
PRE	27593	41367	39199	13187	49737	26456	31537	39650	24860
SUB	32851	34550	29948	17240	39242	22657	23730	30609	20162
ProS	28791	19378	13664	13342	30513	8940	13334	15221	11472
CLA	38557	24851	20872	10496	28508	21857	19897	21760	16148
EP	30218	22047	18339	8850	25408	16373	17539	18654	16472
LA	17633	13708	11816	8513	23186	9707	11928	15858	13448
BLA	19702	15504	16330	7315	24692	13087	19321	19902	17472
BMA	21083	16502	18569	10279	24232	19367	20990	20558	20019
PA	23221	17257	19099	8729	23440	16623	34509	25428	20982
CP	33159	19558	21393	11784	30174	17953	12657	18690	11997

ACB	23144	10253	17072	7649	26037	14381	30581	26629	19925
LS	17041	6650	11918	9003	23904	16428	6785	8262	7815
AAA	25446	13541	16447	9484	20930	21667	21657	18400	18885
GPe	24976	12139	16739	7940	22108	10753	11803	15073	14772
MA	30875	11542	17445	5815	27084	16355	24868	18066	13439
MS	33886	10198	23886	7692	36461	23346	23606	16646	17413
BAC	24068	5733	11756	5953	19364	12447	8833	8980	7237
BS	21273	13001	18448	11699	24688	16487	15851	21019	18710
DORsm	22144	18236	20772	15104	33095	17050	23086	29349	26033
AD	20509	11571	17748	10779	28015	13326	15526	17775	17721
HY	30920	9484	18077	9572	28510	23337	20581	18623	17708
ARH	22573	4768	10441	7879	22499	13528	20835	18703	18226
ADP	32210	6960	16226	8228	30795	22818	24216	18872	16923
AHN	30442	9800	16367	9025	28260	20526	21359	20148	18619
A13	30072	17325	25442	14771	33976	23269	25072	23658	22269
MB	31271	21590	21256	13718	37148	16118	15306	23874	17994
IC	37799	50760	38351	19526	61811	19891	15307	33208	23985
APN	37315	22166	25184	16654	39738	14876	12846	23064	16041
SNc	25162	19831	18732	12978	32327	10200	9374	16264	10874
P	14324	6858	12292	5169	17488	7196	10549	14639	16594
KF	13943	12055	19606	5494	15559	7478	14543	22827	28922
Acs5	18747	6484	19025	7513	23303	10724	13977	19301	20227
CS	25654	11964	19787	9253	31869	9706	9184	14091	15509
MY	23133	9594	14425	5800	13704	8325	20281	17362	15108
AP	25007	23692	25283	10523	25399	9100	27271	35320	26199
ACVI	37345	13709	25953	9118	21117	11687	28554	33776	27172
CB	26645	18278	19501	6460	17132	12011	15181	23935	26402
FN	36062	42105	51586	10895	10967	26773	37518	55981	54320
oct	21725	13587	13891	7346	16906	9292	12936	15907	13310

Supplementary table 6

Quantification of the number of bifurcation points in the C57BL/6J, CD1 and BALB/c samples in the microscopy space, units are in counts/mm3.

Cluster	BL6#1	BL6#2	BL6#3	CD1#1	CD1#2	CD1#3	BALBC #1	BALBC #2	BALBC #3
FRP	6.17	7.04	7.00	10.60	6.79	7.98	7.33	6.95	7.09
MO	6.21	7.21	6.88	6.25	6.11	6.58	7.35	7.71	7.52
SS	6.43	7.40	7.14	6.37	6.50	6.76	7.40	7.78	7.51
GU	6.63	8.05	8.03	6.43	7.10	7.15	8.45	8.27	8.26
VISC	6.68	7.97	7.28	6.89	6.98	7.35	7.60	7.72	7.02
AUD	6.06	7.13	6.80	6.41	5.90	6.42	7.74	8.00	7.51
VIS	6.21	7.03	6.80	6.25	6.10	6.25	7.44	7.93	7.42
ACA	7.01	7.06	7.48	6.59	6.95	7.36	9.44	10.37	8.38
PL	6.52	7.44	6.87	6.41	6.35	7.01	7.99	8.38	8.24
ILA	6.95	7.28	7.26	6.93	6.45	7.05	8.05	8.73	8.08
ORB	6.81	7.24	7.01	6.71	6.31	6.55	7.51	7.30	7.92
AI	6.42	7.55	7.43	6.44	6.46	6.82	8.15	8.18	7.58
RSP	6.31	6.90	6.89	6.35	6.40	6.70	7.72	8.21	8.35
PTL	6.11	7.03	6.81	6.08	6.13	6.29	7.58	7.87	7.47
TE	6.12	7.24	6.81	6.13	5.94	5.98	7.47	7.90	7.25
PERI	6.39	7.26	6.99	6.06	6.21	6.08	7.62	7.71	7.52
ECT	6.38	7.13	6.85	6.10	6.07	5.98	7.64	7.96	7.42
OLF	6.88	7.31	7.41	6.79	6.60	7.43	7.62	7.76	7.55
AOB	6.45	8.09	7.74	6.49	7.39	7.31	7.91	8.34	7.34
AOBgr	7.87	8.01	8.44	7.75	7.05	8.80	8.11	7.49	7.42
AON	6.46	6.83	7.25	6.43	6.61	6.74	7.71	7.89	8.05
TT	8.57	7.59	8.58	7.61	6.92	8.76	8.73	8.01	7.83
DP	6.64	7.04	7.44	6.39	6.33	7.61	8.32	7.98	8.22
PIR	6.54	7.14	7.67	6.43	6.53	7.03	8.20	8.08	7.66
COA	6.48	6.99	7.47	6.90	6.53	6.86	9.06	8.81	7.93
PAA	6.67	6.77	7.76	7.28	6.47	7.36	8.76	8.23	7.72
TR	6.49	7.43	7.39	6.31	6.57	5.98	8.20	9.07	7.62
CA	7.68	7.46	7.94	7.71	6.72	8.11	11.78	12.43	9.66
CA1sp	7.02	6.69	7.25	6.37	6.22	8.57	7.80	7.65	8.29
ENT	6.26	7.24	6.95	6.24	6.74	6.67	7.55	8.11	7.53
PAR	7.32	6.92	7.00	6.48	6.81	7.61	7.39	7.46	7.26
POST	7.29	7.83	8.19	7.91	6.93	7.63	8.17	7.66	8.83
PRE	9.85	7.81	7.60	9.12	7.27	8.70	10.48	7.45	10.80
SUB	7.01	7.50	7.57	7.01	7.19	6.76	7.54	7.69	7.37
ProS	6.31	7.04	7.13	6.41	6.30	6.58	7.58	7.99	8.00
CLA	6.65	7.22	7.85	6.36	6.88	7.00	8.64	8.15	7.62
EP	6.50	7.25	7.68	6.37	6.59	6.83	8.54	8.33	7.81
LA	6.24	6.39	7.19	6.31	6.41	6.57	8.89	8.89	8.11
BLA	6.25	6.75	7.62	6.31	6.57	6.54	8.89	8.88	8.19
BMA	6.38	6.61	7.66	6.53	6.74	7.14	9.16	8.87	8.61
PA	6.18	6.72	7.42	6.18	6.25	6.50	8.57	8.62	7.79
CP	6.90	6.70	7.62	6.77	6.61	7.54	7.90	8.02	7.66

ACB	6.48	6.14	7.11	6.65	6.17	6.87	7.74	7.52	7.03
LS	6.15	6.40	7.33	6.46	6.87	6.44	7.02	7.47	7.14
AAA	6.89	6.81	7.54	7.79	6.94	7.88	9.10	8.24	8.37
GPe	6.57	6.21	7.39	6.54	6.66	7.29	7.75	7.95	7.55
MA	6.83	6.31	7.53	6.93	6.36	7.22	7.68	7.41	7.42
MS	6.90	6.83	7.66	7.57	7.07	8.80	7.28	7.65	7.38
BAC	6.69	7.60	8.04	6.00	7.16	6.09	7.27	7.78	7.34
BS	6.36	6.57	7.16	6.45	6.47	6.69	7.70	7.66	7.37
DORsm	6.42	6.68	7.30	6.43	6.40	6.52	7.90	7.64	7.67
AD	6.21	6.41	6.93	6.41	6.21	6.67	7.35	7.26	7.15
HY	6.65	6.33	7.43	6.70	6.70	7.79	7.77	7.98	7.43
ARH	6.51	6.88	7.51	6.85	6.87	8.65	7.34	7.82	6.86
ADP	7.55	8.47	8.82	9.63	7.28	8.99	7.67	7.92	7.49
AHN	6.81	6.69	7.73	6.74	6.59	7.47	7.49	7.81	7.32
A13	6.78	6.51	7.31	6.97	7.36	7.86	8.11	7.36	7.31
MB	6.37	6.92	7.68	6.17	6.60	6.51	7.62	7.82	7.56
IC	6.45	6.71	6.82	6.32	7.02	6.71	7.90	8.18	7.62
APN	6.43	6.84	7.20	6.08	6.58	6.39	7.43	7.43	7.19
SNc	6.92	7.59	7.89	6.78	6.65	6.88	7.79	8.26	7.81
P	6.99	6.92	7.30	6.96	6.72	7.65	7.27	7.83	7.46
KF	6.54	6.71	6.77	7.28	6.76	7.61	7.56	7.30	7.19
Acs5	6.58	6.37	6.94	6.92	6.21	7.24	7.38	7.26	7.21
CS	6.37	6.11	6.80	5.70	6.13	6.29	7.04	7.51	7.32
MY	6.59	6.49	7.08	6.52	6.85	6.86	7.76	8.21	7.51
AP	6.15	6.37	6.62	6.25	6.67	5.90	7.11	7.67	6.89
ACVI	6.89	6.37	7.05	6.80	6.65	6.36	7.50	7.98	7.38
CB	6.53	7.09	8.01	7.66	6.94	7.20	7.47	8.13	7.67
FN	6.30	6.44	7.01	6.40	6.05	6.27	7.37	7.13	7.14
oct	6.93	6.90	7.36	6.80	6.77	7.12	7.77	7.89	7.37

Supplementary table 7

Quantification of the radii in the C57BL/6J, CD1 and BALB/c samples in the microscopy space, units are in μm .

Cluster	BL6#1	BL6#2	BL6#3	CD1#1	CD1#2	CD1#3	BALBC #1	BALBC #2	BALBC #3
FRP	513.82	798.55	523.34	205.47	425.49	104.89	273.85	416.65	449.20
MO	748.27	879.58	589.07	468.95	780.32	363.00	742.96	723.58	636.58
SS	872.71	1029.32	829.81	554.34	1035.76	637.42	728.90	736.09	618.47
GU	820.40	804.59	666.22	629.23	1049.95	803.98	600.63	597.20	588.15
VISC	725.61	816.54	656.18	520.71	1010.32	650.06	475.67	546.08	553.35
AUD	663.33	969.64	668.40	634.92	814.85	608.00	760.86	830.61	766.07
VIS	663.10	887.08	632.79	418.62	752.73	432.92	691.42	783.77	686.91
ACA	734.28	704.20	560.42	446.24	854.84	494.68	581.45	709.58	559.57
PL	763.19	714.03	528.44	402.49	739.04	502.46	554.37	657.87	644.36
ILA	765.83	521.75	359.05	519.92	709.60	629.88	522.47	630.98	557.01
ORB	970.56	793.58	643.17	504.55	864.11	535.22	620.79	734.78	671.63
AI	745.66	746.30	573.08	450.08	770.26	520.61	654.50	606.86	606.28
RSP	866.37	833.53	589.71	397.26	882.77	502.00	554.10	780.90	639.93
PTL	421.05	879.85	597.98	439.56	721.62	402.40	690.29	730.74	584.46
TE	497.22	815.75	581.53	513.97	795.62	489.01	574.86	719.72	633.72
PERI	448.91	668.78	545.75	310.20	653.38	346.93	463.21	532.25	553.12
ECT	439.39	694.61	539.88	384.91	715.51	388.97	471.36	616.33	589.65
OLF	655.50	377.57	515.16	359.59	879.66	552.47	593.31	624.46	559.64
AOB	781.75	602.76	486.84	374.00	781.45	531.24	578.77	513.32	592.68
AOBgr	498.57	361.81	551.62	232.89	549.29	393.51	566.35	577.94	517.54
AON	890.12	555.11	535.43	475.33	767.80	517.29	631.93	660.44	613.00
TT	680.10	289.00	439.91	367.52	656.28	559.24	580.03	558.74	582.04
DP	702.70	414.25	372.45	458.99	675.98	675.29	522.35	625.20	559.19
PIR	723.98	637.98	643.88	382.58	733.64	587.21	685.85	662.54	606.37
COA	370.70	363.07	491.36	216.09	518.72	369.35	497.68	476.89	503.36
PAA	370.96	236.65	477.60	191.62	594.10	432.22	471.72	505.09	453.47
TR	509.17	517.92	515.96	260.66	606.92	351.59	491.50	500.97	546.27
CA	491.89	508.66	470.52	357.07	564.53	394.46	443.78	525.47	454.25
CA1sp	469.59	431.62	451.56	316.66	502.04	357.42	369.40	490.13	434.14
ENT	527.91	769.72	512.26	368.92	696.84	371.37	535.30	603.18	531.58
PAR	627.90	675.76	549.65	433.44	899.59	429.56	631.95	857.43	551.24
POST	737.01	885.88	780.95	508.43	718.40	498.96	621.53	783.85	565.34
PRE	616.44	823.57	811.75	415.26	915.88	611.49	698.27	821.34	630.84
SUB	677.64	743.15	680.67	492.99	758.94	552.69	597.04	711.13	549.90
ProS	585.27	488.89	381.33	357.25	633.82	277.35	384.50	419.20	358.24
CLA	754.07	629.10	558.94	376.01	645.32	561.16	559.61	586.62	491.09
EP	643.43	589.43	519.83	322.98	613.71	464.44	511.75	532.33	501.80
LA	444.29	464.75	398.06	328.65	578.55	328.14	414.32	479.44	450.76
BLA	476.53	482.49	488.25	285.23	612.01	410.70	542.62	558.78	525.62
BMA	506.65	494.13	510.97	346.57	588.88	510.07	554.84	554.43	556.47
PA	535.89	504.04	535.23	316.64	562.73	436.23	714.75	628.06	574.03
CP	664.96	538.42	549.63	375.64	673.60	473.32	419.35	524.57	386.37

ACB	518.80	334.67	487.95	275.81	599.69	393.23	660.25	638.26	518.50
LS	456.27	287.93	406.75	328.32	574.59	470.23	293.36	331.35	311.69
AAA	538.61	432.88	475.22	323.99	522.85	528.80	544.59	511.23	525.89
GPe	571.48	413.32	489.14	280.55	571.24	346.60	386.42	455.60	451.12
MA	638.32	391.65	496.22	228.30	623.58	442.19	599.09	514.38	413.41
MS	687.63	361.85	588.15	280.67	704.56	544.62	556.44	478.30	456.55
BAC	558.57	262.03	396.06	232.21	498.48	365.27	329.17	335.82	286.51
BS	503.11	406.84	509.32	369.95	583.33	447.38	474.51	550.62	528.20
DORsm	527.66	517.16	542.30	446.81	721.64	466.98	591.91	682.03	648.23
AD	507.19	378.78	504.93	363.44	666.24	401.52	464.10	512.79	518.79
HY	651.17	320.51	488.30	318.08	632.29	547.38	545.10	505.51	493.61
ARH	497.55	175.69	318.76	281.40	554.05	375.50	546.34	488.47	499.21
ADP	654.35	255.73	451.40	293.33	646.42	528.10	586.63	516.12	462.64
AHN	641.53	317.97	464.29	314.70	627.70	511.36	561.12	536.59	506.86
A13	634.72	474.57	594.64	410.09	699.55	544.80	588.85	559.48	557.79
MB	657.20	566.73	562.73	421.31	743.23	439.06	460.01	603.55	501.22
IC	734.66	920.44	782.63	536.52	1027.19	495.87	450.05	731.22	575.98
APN	749.21	594.48	619.21	488.21	778.70	416.98	420.29	598.00	475.46
SNc	567.65	542.50	524.44	409.07	697.21	341.83	334.09	469.99	364.64
P	352.46	227.58	344.13	188.18	413.90	237.93	308.33	392.62	419.51
KF	362.08	344.28	472.36	201.65	402.21	253.10	401.08	553.97	636.51
Acs5	454.30	255.09	500.11	269.49	570.30	328.26	397.73	526.97	532.09
CS	580.24	399.79	538.51	319.40	690.70	340.16	340.45	437.28	455.05
MY	471.49	260.20	344.47	186.78	311.31	224.59	451.40	391.81	362.98
AP	546.03	567.45	566.29	319.32	523.77	272.45	612.00	717.35	592.61
ACVI	715.15	432.69	626.97	317.72	517.25	344.75	672.46	717.26	638.85
CB	543.28	434.98	432.60	212.02	393.57	317.89	392.11	517.13	547.28
FN	718.86	822.46	900.24	346.78	345.11	581.66	725.77	958.80	936.42
oct	479.28	373.89	372.65	255.10	419.38	272.00	360.18	423.28	375.03

Supplementary table 8

Quantification of the local vascular length (per volume) in the C57BL/6J, CD1 and BALB/c samples in the anatomical space. Units are in mm/mm3.

Cluster	BL6#1	BL6#2	BL6#3	CD1#1	CD1#2	CD1#3	BALBC #1	BALBC #2	BALBC #3
FRP	14188	21513	12420	4416	11827	1804	5643	9184	11470
MO	23989	28273	14743	10561	23884	8101	23199	20207	16646
SS	30731	38321	26517	13447	37930	17821	21007	21604	15774
GU	26568	25005	17880	15352	39666	23414	14706	16064	14706
VISC	23124	26924	18266	12296	36853	17906	9227	12793	12063
AUD	18457	32811	17865	15831	25313	16436	21653	25391	21319
VIS	18939	29151	16331	8668	22687	9873	18000	23396	18064
ACA	22288	17982	13520	9729	28576	11806	14084	18291	13732
PL	23282	17778	11719	8143	21561	12320	11744	16719	16504
ILA	22807	9847	6249	10852	18286	15325	9263	13544	11634
ORB	34517	22361	16336	10809	26551	12929	14465	18925	17342
AI	23271	21275	13516	9354	22635	12673	16661	15073	14407
RSP	29064	25885	15103	8209	29817	12359	12230	23588	16777
PTL	10978	29128	16839	9782	20674	9116	19017	20768	15225
TE	11916	24159	13681	11383	24273	11275	12507	19391	14960
PERI	10429	17318	11973	5373	17891	6952	8177	11773	11685
ECT	9350	17833	11757	7191	20126	7916	8632	14528	12927
OLF	21940	10715	14410	8312	31256	15014	17211	17867	15787
AOB	25631	18415	13924	7386	25724	11708	14100	12548	17380
AOBgr	13550	7598	13296	3775	13067	8527	14834	14055	12281
AON	30206	12781	12226	10028	22152	12261	16630	16194	14875
TT	20449	5478	9288	7655	18004	14204	15793	13956	16227
DP	20581	7338	6373	9077	18455	17221	9754	14357	12405
PIR	22940	17491	17291	7707	21789	15295	20005	17980	15353
COA	8871	7883	10157	3444	12249	7864	13178	11551	11295
PAA	8852	5432	10711	2783	14007	9435	12945	12803	11287
TR	12082	11368	10842	4019	15732	6742	11864	12020	12111
CA	12447	11034	10146	6660	14329	8608	8953	11420	9012
CA1sp	11775	8401	9236	5555	11637	7448	6250	9545	8139
ENT	14075	22497	12889	7601	21657	8621	12264	16069	12323
PAR	20360	21184	15822	9815	33398	11782	17342	27459	13729
POST	21566	28489	22645	11168	20893	12177	16043	22624	13847
PRE	16641	24949	23641	7953	29997	15956	19020	23913	14993
SUB	19812	20837	18062	10398	23667	13664	14311	18460	12160
ProS	17364	11687	8241	8047	18403	5392	8042	9180	6919
CLA	23254	14988	12588	6330	17193	13182	12000	13124	9739
EP	18225	13296	11060	5338	15324	9875	10578	11250	9934
LA	10635	8267	7126	5134	13984	5854	7194	9564	8110
BLA	11882	9351	9849	4412	14892	7893	11652	12003	10537
BMA	12715	9952	11199	6199	14615	11681	12659	12399	12074
PA	14005	10408	11519	5265	14137	10026	20813	15336	12654
CP	19999	11795	12902	7107	18198	10827	7634	11272	7236

ACB	13958	6184	10296	4613	15703	8673	18443	16060	12017
LS	10278	4011	7188	5430	14416	9908	4092	4983	4713
AAA	15347	8166	9919	5720	12623	13067	13062	11097	11389
GPe	15063	7321	10095	4789	13333	6485	7119	9091	8909
MA	18621	6961	10521	3507	16335	9864	14998	10896	8105
MS	20437	6150	14405	4639	21990	14080	14237	10039	10502
BAC	14516	3457	7090	3590	11678	7507	5327	5416	4365
BS	12830	7841	11126	7056	14889	9943	9560	12676	11284
DORsm	13355	10998	12527	9109	19960	10283	13923	17700	15700
AD	12369	6978	10704	6501	16896	8037	9363	10720	10688
HY	18648	5720	10902	5773	17194	14075	12413	11232	10680
ARH	13614	2876	6297	4752	13569	8159	12565	11280	10992
ADP	19426	4198	9786	4962	18572	13762	14605	11382	10206
AHN	18360	5911	9871	5443	17044	12379	12882	12151	11229
A13	18137	10449	15344	8908	20491	14033	15121	14268	13430
MB	18860	13021	12820	8274	22404	9721	9231	14399	10852
IC	22796	30614	23129	11776	37278	11996	9232	20028	14466
APN	22505	13368	15188	10044	23966	8972	7747	13910	9674
SNc	15175	11960	11297	7827	19497	6152	5654	9809	6558
P	8639	4136	7413	3118	10547	4340	6362	8829	10008
KF	8409	7270	11824	3313	9383	4510	8771	13767	17443
Acs5	11307	3911	11474	4531	14054	6468	8429	11640	12199
CS	15472	7215	11933	5581	19220	5854	5539	8498	9354
MY	13952	5786	8700	3498	8265	5021	12231	10471	9112
AP	15082	14288	15248	6347	15318	5488	16447	21302	15801
ACVI	22523	8268	15652	5499	12736	7048	17221	20370	16387
CB	16070	11024	11761	3896	10333	7244	9155	14435	15923
FN	21749	25394	31112	6571	6614	16147	22627	33762	32761
oct	13102	8194	8378	4431	10196	5604	7802	9594	8028

Supplementary table 9

Quantification of the number of bifurcation points in the C57BL/6J, CD1 and BALB/c samples in the anatomical space, units are in counts/mm³.

Cluster	BL6#1	BL6#2	BL6#3	CD1#1	CD1#2	CD1#3	BALBC #1	BALBC #2	BALBC #3
FRP	7.30	8.33	8.28	12.55	8.03	9.44	8.68	8.22	8.39
MO	7.35	8.54	8.15	7.40	7.23	7.79	8.69	9.13	8.90
SS	7.61	8.75	8.45	7.54	7.69	8.00	8.76	9.21	8.89
GU	7.85	9.52	9.50	7.61	8.40	8.46	10.00	9.78	9.77
VISC	7.90	9.43	8.62	8.15	8.26	8.69	9.00	9.14	8.31
AUD	7.18	8.44	8.05	7.59	6.99	7.60	9.17	9.47	8.88
VIS	7.35	8.32	8.04	7.40	7.22	7.39	8.81	9.39	8.78
ACA	8.29	8.35	8.86	7.79	8.23	8.71	11.18	12.27	9.92
PL	7.72	8.81	8.13	7.58	7.51	8.30	9.46	9.92	9.75
ILA	8.22	8.61	8.60	8.21	7.63	8.34	9.53	10.33	9.57
ORB	8.06	8.57	8.29	7.94	7.46	7.76	8.88	8.64	9.37
AI	7.60	8.93	8.79	7.63	7.64	8.07	9.64	9.69	8.97
RSP	7.47	8.17	8.15	7.52	7.57	7.93	9.14	9.72	9.88
PTL	7.23	8.32	8.06	7.19	7.25	7.45	8.97	9.32	8.84
TE	7.25	8.57	8.06	7.26	7.03	7.08	8.85	9.36	8.59
PERI	7.57	8.59	8.28	7.17	7.35	7.20	9.01	9.13	8.90
ECT	7.55	8.43	8.11	7.22	7.18	7.08	9.05	9.42	8.78
OLF	8.15	8.65	8.77	8.04	7.81	8.79	9.01	9.19	8.93
AOB	7.63	9.57	9.16	7.68	8.75	8.66	9.36	9.87	8.69
AOBgr	9.32	9.48	9.99	9.18	8.35	10.41	9.60	8.87	8.78
AON	7.64	8.08	8.58	7.61	7.82	7.98	9.13	9.34	9.53
TT	10.14	8.98	10.15	9.01	8.19	10.37	10.33	9.48	9.26
DP	7.86	8.33	8.80	7.57	7.49	9.01	9.85	9.44	9.73
PIR	7.74	8.45	9.08	7.61	7.73	8.32	9.70	9.57	9.07
COA	7.67	8.28	8.84	8.16	7.72	8.11	10.72	10.43	9.39
PAA	7.90	8.01	9.19	8.62	7.66	8.71	10.36	9.74	9.14
TR	7.68	8.79	8.75	7.47	7.77	7.07	9.71	10.74	9.01
CA	9.09	8.84	9.40	9.13	7.95	9.59	13.94	14.71	11.43
CA1sp	8.30	7.92	8.59	7.54	7.36	10.15	9.23	9.06	9.81
ENT	7.41	8.57	8.22	7.39	7.98	7.90	8.94	9.60	8.91
PAR	8.66	8.20	8.28	7.67	8.06	9.01	8.75	8.84	8.59
POST	8.63	9.27	9.69	9.36	8.20	9.03	9.67	9.07	10.45
PRE	11.66	9.24	9.00	10.79	8.61	10.30	12.41	8.82	12.78
SUB	8.30	8.87	8.97	8.30	8.51	8.00	8.93	9.11	8.72
ProS	7.47	8.33	8.43	7.59	7.46	7.79	8.97	9.46	9.47
CLA	7.87	8.54	9.29	7.53	8.14	8.29	10.23	9.65	9.02
EP	7.69	8.58	9.09	7.54	7.80	8.08	10.11	9.86	9.24
LA	7.39	7.57	8.51	7.47	7.58	7.78	10.52	10.52	9.60
BLA	7.40	7.98	9.02	7.47	7.77	7.75	10.52	10.51	9.70
BMA	7.56	7.83	9.07	7.73	7.97	8.45	10.84	10.50	10.19
PA	7.32	7.95	8.78	7.31	7.40	7.70	10.14	10.20	9.22
CP	8.17	7.93	9.02	8.01	7.82	8.92	9.35	9.50	9.06

ACB	7.68	7.26	8.42	7.88	7.31	8.13	9.16	8.90	8.32
LS	7.28	7.58	8.67	7.65	8.14	7.62	8.31	8.84	8.45
AAA	8.16	8.06	8.93	9.23	8.21	9.33	10.77	9.75	9.91
GPe	7.78	7.35	8.75	7.74	7.88	8.63	9.17	9.41	8.93
MA	8.08	7.47	8.91	8.21	7.53	8.55	9.09	8.77	8.79
MS	8.17	8.09	9.07	8.96	8.37	10.42	8.62	9.06	8.74
BAC	7.92	8.99	9.52	7.11	8.47	7.20	8.61	9.21	8.69
BS	7.53	7.77	8.47	7.64	7.65	7.92	9.11	9.07	8.73
DORsm	7.60	7.91	8.64	7.61	7.57	7.72	9.35	9.04	9.08
AD	7.35	7.58	8.20	7.59	7.35	7.90	8.70	8.59	8.46
HY	7.88	7.49	8.79	7.93	7.93	9.22	9.20	9.44	8.79
ARH	7.71	8.14	8.89	8.11	8.13	10.23	8.69	9.25	8.12
ADP	8.94	10.03	10.44	11.40	8.62	10.64	9.08	9.38	8.87
AHN	8.06	7.92	9.15	7.98	7.80	8.84	8.86	9.24	8.66
A13	8.02	7.71	8.65	8.25	8.71	9.31	9.60	8.72	8.66
MB	7.53	8.19	9.09	7.31	7.81	7.70	9.02	9.26	8.95
IC	7.63	7.94	8.07	7.48	8.31	7.95	9.35	9.68	9.02
APN	7.61	8.10	8.53	7.19	7.79	7.56	8.80	8.79	8.51
SNc	8.19	8.98	9.33	8.03	7.88	8.14	9.21	9.78	9.25
P	8.28	8.19	8.65	8.24	7.96	9.06	8.61	9.27	8.83
KF	7.74	7.94	8.02	8.62	8.00	9.01	8.95	8.65	8.51
Acs5	7.79	7.54	8.22	8.19	7.35	8.57	8.74	8.59	8.53
CS	7.54	7.23	8.05	6.74	7.25	7.45	8.34	8.89	8.67
MY	7.80	7.68	8.37	7.72	8.11	8.12	9.19	9.72	8.89
AP	7.28	7.54	7.83	7.40	7.90	6.98	8.42	9.08	8.16
ACVI	8.16	7.54	8.34	8.04	7.87	7.53	8.87	9.45	8.73
CB	7.73	8.40	9.49	9.07	8.21	8.52	8.85	9.62	9.08
FN	7.46	7.62	8.30	7.57	7.16	7.43	8.72	8.44	8.45
oct	8.20	8.17	8.71	8.05	8.02	8.42	9.20	9.34	8.73

Supplementary table 10

Quantification of the radii in the C57BL/6J, CD1 and BALB/c samples in the anatomical space, units are in μm .

Brain region	References	Normalized vascular length			Region-match	Quantified volume (μm)
		Reported (m/mm^3)	Measured by VesSAP			
			microscopic space (m/mm^3)	anatomical space (m/mm^3)		
Cortex	Lugo-Hernandez et al.*	0.92 ± 0.17	1.28 ± 0.16	0.91 ± 0.11	yes	$508 \times 508 \times 1500$
Cortex	Tsai et al. **, ¹	0.88 ± 0.17	0.87 ± 0.13	0.63 ± 0.09	yes	$256 \times 1656 \times 700$
Cortex	Di Giovanna et al. ***	0.46 - 0.47	0.67 ± 0.03	0.48 ± 0.02	yes	$361 \times 361 \times 350$
Cortex	Zhang et al. ***, ^a	0.44 ± 0.04	1.47 ± 0.05	1.05 ± 0.04	no	$504 \times 504 \times 886$

*: 3DISCO technique, image acquisition in low (3.2x) and in high resolution (12.6x)

**: sucrose clearing of dissected dorsal cortex pieces

***: CLARITY technique

^a: This study did not exactly define the quantified cortex regions and did not indicate a numerical correction for any potential volume change due to clearing², which can explain the difference compared to our results.

1 Tsai, P. S. et al. Correlations of neuronal and microvascular densities in murine cortex revealed by direct counting and colocalization of nuclei and vessels. *Journal of Neuroscience* 29, 14553-14570 (2009).

2 Kim, J. H. et al. Optimizing tissue-clearing conditions based on analysis of the critical factors affecting tissue-clearing procedures. *Scientific reports* 8, 12815 (2018).

Supplementary table 11

Comparison of VesSAP measurements with those in existing literature. Each comparison is calculated from n=3 C57BL/6J animals and two ROIs per animal. Data is shown as mean \pm SD.

Cluster	BL6 vs. CD1	BL6 vs. BALBC	CD1 vs. BLABC	BL6 vs. CD1	BL6 vs. BALBC	CD1 vs. BLABC	BL6 vs. CD1	BL6 vs. BALBC	CD1 vs. BLABC
Average:	Local length	Local length	Local length	Local bifurc.	Local bifurc.	Local bifurc.	Local radius	Local radius	Local radius
FRP	0.41	0.09	-0.38	0.36	0.26	-0.17	0.31	-1.30	-1.49
MO	0.39	0.07	-0.37	0.35	0.24	-0.16	0.37	-1.31	-1.59
SS	0.38	0.07	-0.36	0.34	0.24	-0.15	0.36	-1.31	-1.59
GU	0.38	0.05	-0.38	0.34	0.22	-0.17	0.36	-1.31	-1.58
VISC	0.40	0.03	-0.41	0.36	0.21	-0.20	0.34	-1.31	-1.56
AUD	0.41	0.01	-0.45	0.37	0.18	-0.24	0.34	-1.33	-1.57
VIS	0.41	0.01	-0.45	0.37	0.19	-0.24	0.34	-1.32	-1.56
ACA	0.40	0.01	-0.44	0.36	0.19	-0.22	0.33	-1.31	-1.54
PL	0.40	0.00	-0.44	0.36	0.18	-0.23	0.33	-1.30	-1.54
ILA	0.39	0.00	-0.44	0.36	0.18	-0.23	0.32	-1.29	-1.52
ORB	0.41	0.00	-0.45	0.37	0.17	-0.25	0.32	-1.27	-1.50
AI	0.40	-0.02	-0.46	0.36	0.16	-0.25	0.31	-1.27	-1.49
RSP	0.40	-0.02	-0.46	0.36	0.15	-0.25	0.30	-1.27	-1.47
PTL	0.39	-0.04	-0.46	0.35	0.13	-0.26	0.29	-1.25	-1.45
TE	0.39	-0.04	-0.46	0.34	0.14	-0.25	0.29	-1.24	-1.43
PERI	0.39	-0.03	-0.46	0.35	0.13	-0.25	0.27	-1.23	-1.42
ECT	0.38	-0.04	-0.46	0.34	0.13	-0.25	0.25	-1.22	-1.40
OLF	0.38	-0.04	-0.45	0.34	0.12	-0.26	0.24	-1.22	-1.38
AOB	0.40	-0.03	-0.47	0.36	0.13	-0.27	0.23	-1.22	-1.38
AOBgr	0.40	-0.04	-0.48	0.36	0.12	-0.28	0.23	-1.23	-1.38
AON	0.40	-0.03	-0.46	0.35	0.13	-0.26	0.23	-1.27	-1.42
TT	0.40	-0.03	-0.46	0.35	0.12	-0.26	0.22	-1.25	-1.40
DP	0.42	-0.02	-0.46	0.36	0.14	-0.26	0.22	-1.29	-1.42
PIR	0.44	-0.01	-0.48	0.38	0.14	-0.27	0.21	-1.28	-1.40
COA	0.44	-0.01	-0.48	0.38	0.14	-0.27	0.20	-1.27	-1.38
PAA	0.44	0.01	-0.47	0.38	0.16	-0.26	0.20	-1.24	-1.35
TR	0.46	0.03	-0.47	0.39	0.17	-0.25	0.20	-1.23	-1.34
CA	0.45	0.03	-0.46	0.39	0.18	-0.24	0.18	-1.21	-1.31
CA1sp	0.45	0.02	-0.46	0.39	0.18	-0.24	0.17	-1.34	-1.43
ENT	0.45	0.02	-0.46	0.39	0.17	-0.25	0.18	-1.33	-1.44
PAR	0.44	0.01	-0.46	0.38	0.16	-0.25	0.17	-1.31	-1.42
POST	0.45	0.02	-0.46	0.40	0.17	-0.26	0.17	-1.32	-1.43
PRE	0.43	0.00	-0.46	0.37	0.15	-0.26	0.17	-1.35	-1.44
SUB	0.44	-0.01	-0.47	0.38	0.14	-0.26	0.19	-1.58	-1.65
ProS	0.43	-0.03	-0.48	0.37	0.12	-0.28	0.17	-1.60	-1.65
CLA	0.43	-0.05	-0.51	0.37	0.10	-0.30	0.16	-1.58	-1.61
EP	0.42	-0.07	-0.51	0.36	0.07	-0.31	0.14	-1.58	-1.58

LA	0.41	-0.09	-0.51	0.35	0.05	-0.31	0.11	-1.57	-1.53
BLA	0.41	-0.09	-0.52	0.35	0.05	-0.32	0.11	-1.53	-1.48
BMA	0.41	-0.08	-0.51	0.35	0.06	-0.31	0.09	-1.52	-1.43
PA	0.41	-0.07	-0.50	0.36	0.07	-0.31	0.09	-1.51	-1.40
CP	0.40	-0.04	-0.47	0.35	0.10	-0.28	0.06	-1.48	-1.33
ACB	0.40	-0.08	-0.50	0.34	0.06	-0.31	0.06	-1.46	-1.31
LS	0.40	-0.04	-0.47	0.35	0.09	-0.28	0.06	-1.45	-1.29
AAA	0.43	-0.06	-0.52	0.38	0.08	-0.33	0.06	-1.46	-1.28
GPe	0.44	-0.05	-0.52	0.38	0.09	-0.32	0.09	-1.45	-1.31
MA	0.43	-0.07	-0.52	0.38	0.07	-0.33	0.10	-1.41	-1.27
MS	0.42	-0.07	-0.52	0.38	0.07	-0.33	0.10	-1.40	-1.26
BAC	0.43	-0.09	-0.55	0.40	0.06	-0.36	0.16	-1.42	-1.39
BS	0.44	-0.12	-0.59	0.41	0.03	-0.40	0.09	-1.51	-1.36
DORsm	0.45	-0.11	-0.59	0.42	0.04	-0.41	0.08	-1.46	-1.31
AD	0.47	-0.07	-0.59	0.44	0.07	-0.40	0.05	-1.41	-1.23
HY	0.49	-0.06	-0.60	0.46	0.08	-0.42	0.05	-1.40	-1.20
ARH	0.52	-0.05	-0.62	0.49	0.08	-0.44	0.07	-1.35	-1.19
ADP	0.58	0.01	-0.60	0.52	0.12	-0.43	0.12	-1.38	-1.31
AHN	0.63	0.04	-0.62	0.57	0.13	-0.45	0.23	-1.82	-1.97
A13	0.66	0.07	-0.63	0.60	0.15	-0.47	0.22	-1.87	-1.99
MB	0.70	0.07	-0.66	0.64	0.15	-0.50	0.33	-1.85	-2.19
IC	0.72	0.04	-0.71	0.66	0.12	-0.55	0.26	-1.87	-2.07
APN	0.83	-0.07	-0.89	0.79	-0.01	-0.75	0.28	-1.75	-1.98
SNC	0.89	-0.17	-1.03	0.86	-0.11	-0.90	0.20	-1.74	-1.91
P	0.94	-0.28	-1.22	0.91	-0.20	-1.07	0.08	-1.98	-1.79
KF	1.04	-0.26	-1.29	0.99	-0.19	-1.12	0.10	-2.03	-1.89
Acs5	1.05	-0.19	-1.20	1.01	-0.13	-1.06	0.26	-1.96	-2.14
CS	1.19	-0.14	-1.24	1.13	-0.11	-1.11	0.34	-1.91	-2.25
MY	1.34	-0.24	-1.53	1.29	-0.21	-1.41	0.27	-1.86	-2.21
AP	1.51	-0.25	-1.65	1.40	-0.22	-1.48	0.31	-1.64	-2.03
ACVI	1.42	-0.18	-1.49	1.37	-0.15	-1.38	0.34	-1.61	-2.08
CB	1.34	-0.08	-1.26	1.34	-0.09	-1.19	0.30	-1.35	-1.74
FN	1.31	-0.07	-1.21	1.32	-0.10	-1.18	0.65	-1.74	-2.43
oct	1.21	0.46	-1.04	1.08	0.68	-0.77	0.73	-2.34	-3.32

Supplementary table 12

Statistical estimation of the difference between the local properties of the neurovasculature in the C57BL/6J, CD1 and BALB/c samples using Cohen's *d*. Each comparison is calculated from n=3 animals per strain.